



— BUREAU OF —
RECLAMATION



Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage Project Record of Decision



**U.S. Department of the Interior
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Mission Statements

The Department of the Interior conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The mission of the United States Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

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Acronyms and Abbreviations

Full Phrase

BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIG	Climate Impact Group
CIPP	cure-in-place pipe
CO ₂ e	carbon dioxide equivalents
COIC	Cascade Orchard Irrigation Company
Colville Tribes	Confederated Tribes of the Colville Reservation
COR	Contracting Officer's Representative
CUA	contractor use area
CWA	Clean Water Act
DAHP	Washington State Department of Archaeology and Historic Preservation
Ecology	Washington Department of Ecology
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EO	Executive Order
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
Forest Service	U.S. Forest Service
FPRP	ESA Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington State Fish Passage and Habitat Enhancement Restoration Programmatic
FPRP III	Programmatic Endangered Species Act Section 7(a)(2) Biological Opinion and the Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Seattle District Corps of Engineers Permitting of Fish Passage and Restoration Action in Washington State
GHG	greenhouse gases
IAA	Interagency Acquisition Agreement
IO&MA	Intake Operations and Maintenance Area
ITA	Indian Trust Assets
JARPA	Joint Aquatic Resources Permit Application
LFC	Leavenworth Fisheries Complex
LNFH, Hatchery	Leavenworth National Fish Hatchery
LOS	Level of Service

NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NRHP	National Register of Historic Places
O&M	operations and maintenance
OEPC	Office of Environmental Policy and Compliance
OFD	One Federal Decision
PISMA	Pipeline Intake and Sediment Management Area
PUD	Public Utility District
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
ROD	Record of Decision
SPCC	Spill Prevention, Control, and Countermeasure Plan
SWISP	Surface Water Intake Fish Screens and Fish Passage
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
TMDL	total maximum daily load
U.S.	United States
USACE	U.S. Department of the Army, Corps of Engineers
USC	United States Code
USFWS	U.S. Department of the Interior, Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
Yakama Nation	Confederated Tribes and Bands of the Yakama Nation

Record of Decision

Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage Project

Approved by:

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Introduction

The United States (U.S.) Department of the Interior, Bureau of Reclamation (Reclamation) has prepared a Draft and Final Environmental Impact Statement (EIS) for the Leavenworth National Fish Hatchery (hereafter, LNFH or Hatchery) Surface Water Intake Fish Screens and Fish Passage (SWISP) Project. In the EIS, Reclamation evaluated the impacts of the SWISP Project on the natural and human environment. The U.S. Fish and Wildlife Service (USFWS) through its role as owner and operator of LNFH has assisted with the preparation of this EIS, served as a cooperating agency throughout the process, and is a joint signatory of this Record of Decision (ROD).

The SWISP Project EIS followed the approach to the National Environmental Policy Act (NEPA) process as previously mandated by Executive Order (EO) 13807: *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects* (August 15, 2017). EO 13807 established the definition of a Major Infrastructure Project, and notably defined it as an infrastructure project for which multiple authorizations by federal agencies would be required. Section 5(b)(ii) of EO 13807 introduced and defined the term “One Federal Decision” (OFD) as a process that required the federal lead agency, cooperating agencies, and participating agencies to record any individual agency decision in one Record of Decision (ROD). The SWISP Project qualified as a Major Infrastructure Project under EO 13807 subject to OFD based on the cooperating agency status of the USFWS and the U.S. Army Corps of Engineers (USACE), and their required authorizations. On January 20, 2021, EO 13807 was revoked by 13990: *Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis*. Regardless, EO 13990 does not preclude signing of a joint ROD by Reclamation and USFWS, or the issuance of permits by the USACE.

Decision Summary

Bureau of Reclamation Decision Summary

After reviewing the purpose and need for the proposed action, EIS objectives, and effects analysis for the alternatives, as detailed in the Final EIS, SWISP Project EIS Biological Assessment, and SWISP Project EIS Biological Opinion, as well as input from the Tribes, federal, state, and local agencies, and public comments, Reclamation selects the preferred alternative (Alternative C) described in the Final EIS as the Selected Alternative for the rehabilitation of the LNFH surface water intake and delivery system on Icicle Creek. All applicable laws, regulations, executive orders, and local government plans were considered in evaluation of alternatives. This ROD completes the NEPA process.

U.S. Fish and Wildlife Service Decision Summary

The USFWS selects the preferred alternative (Alternative C) described in the Final EIS for the ongoing operations and maintenance (O&M) of the LNFH. The USFWS has reviewed the Final

EIS, including the purpose and need, the stated objectives, the alternatives analyzed, including the No Action alternative, the effects analysis for each alternative, and practicable means to avoid or minimize environmental harm. The USFWS has also reviewed the SWISP Project EIS Biological Assessment, as well as input from the associated Tribes; federal, state, and local agencies; and public comments. All applicable laws, regulations, executive orders, and local government plans were considered in evaluation of alternatives. Further, the USFWS has determined, and the USFWS Biological Opinion demonstrates, based on the best available commercial and scientific information, that Reclamation's implementation of the Selected Alternative will not jeopardize listed species or adversely modify or destroy critical habitat. The USFWS supports the construction of the proposed facilities and will operate the proposed facilities once constructed. This ROD completes the NEPA process.

Background

The LNFH was designed and constructed in the late 1930s as mitigation for the impacts to anadromous fish resulting from the construction and operation of Grand Coulee Dam. The Hatchery, which is owned and operated by the USFWS and funded by Reclamation and Bonneville Power Administration, currently raises and releases 1.2 million Spring Chinook Salmon smolts annually into Icicle Creek¹.

The LNFH, which is one of the three hatcheries comprising the Leavenworth Fisheries Complex (LFC), is funded and operated under an Interagency Acquisition Agreement (IAA; #R18PG00084) between Reclamation and USFWS. Under the IAA, Reclamation and USFWS collaborate to review and approve annual budgets for LNFH operations and identify rehabilitation and replacement work for facilities. USFWS in turn operates and maintains LNFH facilities to ensure fish production goals are met.

Under the IAA, USFWS operates LNFH to produce fish in accordance with the 2018-2027 *U.S. v. Oregon* Management Agreement². In addition, USFWS monitors and evaluates fish production in accordance with standard USFWS practices and as required by applicable regulatory documents, including Endangered Species Act (ESA) biological opinions relating to O&M of LNFH and Leavenworth Fisheries Complex (LFC) facilities. Fish production, monitoring, and evaluation activities are coordinated with state, federal, Tribal, and other partners and entities as appropriate. The most important venues for this coordination are the committees established as part of the *U.S. v. Oregon* Management Agreement and the Hatchery committees established to mitigate the effects of

¹ This level is less than the *U.S. v. Oregon* management levels which were adjusted to accommodate water quality, fish health, Hatchery infrastructure issues, and ESA straying concerns. The goal of the *U.S. v. Oregon* parties is a return to the higher historic production levels once these outstanding issues have been resolved.

² Agreement Parties (State of Washington, State of Oregon, State of Idaho, the United States, the Shoshone-Bannock Tribes, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Confederated Tribes and Bands of the Yakama Nation). 2018-2027 United States v. Oregon Management Agreement. District Court of Oregon Case 3:68-cv-00513-MO, Document 2607-1, filed February 26, 2018.

Public Utility District (PUD)-owned dams in the mid-Columbia River. Implementation of the SWISP Project does not propose changes to the *U.S. v. Oregon* Management Agreement (Agreement Parties 2018) or Hatchery fish production.

The LNFH's primary point of diversion and water delivery system on Icicle Creek is nearly 80 years old and is reaching or exceeding its operational life. Rehabilitation, replacement, and modernization of the LNFH surface water intake and delivery system was evaluated in the *Icicle Creek Restoration Project Final EIS*³ and the *Icicle Creek Water Resource Management Strategy (Icicle Strategy) Final Programmatic EIS* prepared by the Washington State Department of Ecology (Ecology) and Chelan County (hereafter, *Icicle Strategy*⁴). The existing intake facility does not comply with current National Marine Fisheries Service⁵ (NMFS) screening criteria for anadromous salmonids⁶, can impede fish passage during low flow conditions, and can entrain⁷ fish species listed under the ESA, potentially constituting take⁸. Current flows at the fish ladder/sediment sluice do not meet NMFS guidelines for fish attraction. The NMFS Biological Opinion on LNFH operations⁹ requires Reclamation and the USFWS to have in place and operating by May 2023 a surface water intake and delivery system that complies with NMFS current screening and fish passage criteria for anadromous fish passage facilities.

Safety, water conservation, sediment management, and maintaining and prolonging a dependable surface water intake and delivery system are also LNFH priorities to address in relation to this aging infrastructure. Improving employee safety when operating and maintaining the intake and delivery facilities is of great concern to the LNFH. During winter months, employees encounter snow, ice, and cold water at the intake and gatehouse, and, at times, a condition known as frazil ice¹⁰. During these conditions, the water delivery system must be observed 24 hours a day to ensure adequate surface water delivery to the Hatchery. Ice buildup may reduce the amount of water that can be safely diverted to the LNFH, requiring employees to use blow torches, picks, and other methods to remove ice and frazil ice accumulation from the intake structures. Employees also experience safety risks in the existing gatehouse related to potentially hazardous materials (lead paint), fine rack maintenance, and sediment removal.

³ USFWS. 2002. Icicle Creek Restoration Project – Leavenworth National Fish Hatchery Final Environmental Impact Statement. Portland, Oregon.

⁴ Chelan County and Ecology. 2019. Final Programmatic Environmental Impact Statement for the Icicle Creek Water Resource Management Strategy (Icicle Strategy). Office of Columbia River. Union Gap, Washington.

⁵ This agency is also known as NOAA Fisheries.

⁶ NMFS. 2011. Anadromous Salmonid Passage Facility Design. National Marine Fisheries Service, Northwest Region, Portland, Oregon.

⁷ Entrainment means the entrapment of fish into a watercourse diversion that has no screen or into high velocity water along the face of an improperly designed screen (Washington Administrative Code [WAC] 220-660-030).

⁸ Take as defined under the ESA means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

⁹ NMFS. 2017. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH) Consultation, Leavenworth National Fish Hatchery Spring Chinook Salmon Program (Reinitiation 2016). National Marine Fisheries Service, West Coast Region, Portland, Oregon.

¹⁰ Frazil ice is a collection of loose ice crystals that form in supercooled turbulent water that float, are suspended in the water column, or attach to the low-head diversion dam and intake structures.

Water conservation in the Icicle Creek watershed is important to the area's many water users. The Project is designed to improve the Hatchery's ability to support future water conservation goals. Specifically, the dual intake apertures and fish screens would allow greater control of water quantities diverted from Icicle Creek over a range of flows, while maintaining NMFS current screening and fish passage criteria for anadromous salmonids. Improving LNFH's ability to conserve water is an essential step in modernizing the Hatchery's production facilities and meeting conservation objectives of local stakeholders (i.e., Icicle Work Group¹¹).

Decreasing the time, effort, and funding of maintenance activities associated with sediment management in and around the existing facilities has been a chronic challenge¹². Tons of sediment have moved through the system and led to wear on the intake facilities and excessive wear on the conveyance pipeline. Although the original wood stave conveyance pipeline was replaced in the 1960s, the poor condition of the concrete conveyance pipeline is a serious matter and its ability to continue the reliable delivery of water to the Hatchery is a priority for LNFH managers. Transported sediments would continue to degrade the existing conveyance pipeline if left alone. Failure of the delivery system would jeopardize the ability for LNFH to meet its fish production obligations.

Purpose of and Need for Action

The need for the proposed action is to comply with the NMFS 2017 Biological Opinion and current screening and fish passage criteria for anadromous fish passage facilities, improve employee safety when operating and maintaining the intake and delivery structures, and increase reliability and longevity of the water delivery system.

The purpose of the SWISP Project is to minimize take of ESA-listed fish species, provide fish passage that complies with current regulatory criteria, and ensure safe, efficient, and reliable delivery of LNFH's full surface water rights from Icicle Creek.

Proposed Federal Action

Reclamation and USFWS are proposing to rehabilitate, replace, and modernize the LNFH surface water intake and delivery system on Icicle Creek near Leavenworth, Washington by building new

¹¹ The Icicle Work Group is made up of a broad coalition of stakeholders representing local, state, and federal agencies, Tribes, irrigation and agriculture interests, and environmental organizations. The purpose of the Icicle Work Group is to develop a comprehensive water resource management strategy for the Icicle Watershed that will achieve multiple instream and out-of-stream benefits through investment in conservation, storage restoration and reoperation, water marketing, habitat, and fish passage projects.

¹² USFWS. 2020. SWISP O&M of Potential Icing and Sediment Accumulation. Unpublished whitepaper prepared by the USFWS Mid-Columbia Fish & Wildlife Conservation Office, Leavenworth Fisheries Complex, Washington.

headworks, installing NMFS-compliant fish screens, constructing a creek-width roughened channel¹³, and replacing and lining the surface water conveyance pipeline to the Hatchery.

Alternatives Considered

The alternative development process incorporated a number of guiding principles as provided by relevant laws and guidance, including the Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 Code of Federal Regulations [CFR] Parts 1500–1508, as updated July 16, 2020 and effective September 14, 2020). Additional relevant laws and guidance incorporated into the process include the U.S. Department of the Interior's NEPA Regulations (43 CFR Part 46), Reclamation's NEPA Handbook, and Principles and Requirements for Federal Investments in Water Resources¹⁴.

The SWISP Project consists of six components:

1. Intake and Fish Screens
2. Fish Passage
3. Sediment Management
4. Conveyance Pipeline
5. Temporary Hatchery Water Supply
6. Access and Staging

The different ways these components can be implemented are called Project elements. Alternatives development involved identifying the different elements available for each component.

The No Action alternative (Alternative A) and three action alternatives (Alternatives B, C, and D) were analyzed in the EIS. Reclamation identified Alternative C as the preferred alternative.

No Action Alternative

The No Action alternative is continuation of current O&M of the existing LNFH surface water intake and delivery system on Icicle Creek. The existing intake and delivery system, constructed in 1939 and 1940, would remain in its current degraded condition and would likely continue to deteriorate. Under the No Action alternative, all existing features listed below would remain in place and would not be modified, improved, or rehabilitated.

- Low-head diversion dam
- Intake channel
- Intake trashrack structure
- Access road
- Fish ladder/sediment sluice

¹³ This is a roughened channel spanning the width of Icicle Creek.

¹⁴ https://www.doi.gov/sites/doi.gov/files/uploads/principles_and_requirements_march_2013.pdf

- Gatehouse
- Outlet channel
- Conveyance pipeline
- Sand settling basin
- Inside and outside screen chambers

The diversion dam would continue to divert water from Icicle Creek to the intake channel, through an unscreened diversion. The intake trashrack structure at the entrance to the concrete intake channel would remain in operation and would continue to prevent debris from entering the concrete intake channel. The existing sediment sluice would remain in place, requiring accumulated sediment to be removed from the intake channel. The gatehouse would remain in place and the outlet channel would continue to direct bypassed water and sluice material (sediment) from the gatehouse back to Icicle Creek. The intake access road would not be modified or extended and would continue to provide access to the stairs leading to the intake trashrack structure. Collectively, the existing footprint of the intake access road, intake channel and intake trashrack structure, and gatehouse, including the existing stairs to the gatehouse from Icicle Creek Road, cover approximately 0.06 acres. The existing fish ladder would not be modified to alter flow or enhance fish passage. The aging 31- to 33-inch diameter buried concrete pipeline would continue to convey water up to 42 cfs from the gatehouse to the Hatchery. No sections would be lined or replaced and introduced sediment would continue to be transported to the Hatchery.

Action Alternatives

The action alternative components, and processes common to each action alternative, are summarized below in **Table 1**, Action Alternatives Analyzed in the EIS. The NMFS Biological Opinion on LNFH operations¹⁵ requires Reclamation and the USFWS to have in place and operating by May 2023 a surface water intake and delivery system that complies with NMFS current screening and fish passage criteria for anadromous fish passage facilities. This deadline was factored into the consideration of construction schedules for the action alternatives. Additionally, the Chelan County Noise Ordinance (Chelan County Code Chapter 7.35) and Washington Administrative Code 173-60-040 were factored into consideration of workday length.

Under each of the action alternatives, construction of the SWISP Project would occur in three phases.

Phase I – This phase would include construction of the intake access road and rehabilitation of the intake structures and facilities (NMFS-compliant fish screens and fish passage) and would include work within the ordinary high water mark of Icicle Creek. Construction under Alternatives B and C would occur up to 24 hours per day, 6 days per week, and up to 7 days per week during an in-water work window of July 1 to November 15 each year. Construction under Alternatives B and C would

¹⁵ NMFS. 2017. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH) Consultation, Leavenworth National Fish Hatchery Spring Chinook Salmon Program (Reinitiation 2016). National Marine Fisheries Service, West Coast Region, Portland, Oregon.

occur over two construction seasons within the in-water work window. Construction under Alternative D would occur during the workday hours of 7:00 a.m. to 10:00 p.m., 5 days per week, and up to 6 days per week, during an in-water work window of July 1 to October 31 each year.

Table 1. Action Alternatives Analyzed in the EIS

Alternative	Intake and Fish Passage	Sediment Management	Conveyance Pipeline	Temporary Hatchery Water Supply	Access and Staging
B – Proposed Action	<p>Construct the headworks and roughened channel, incorporating the existing low-head diversion dam and intake channel and portion of the fish ladder/sediment sluice; remove unincorporated portion.</p> <p>Install NMFS-compliant self-cleaning, cylindrical screens at the diversion headworks.</p> <p>Construct a low-flow boulder weir fishway and roughened channel to provide NMFS-compliant fish passage.</p> <p>Remove the intake trashrack structure and place a new pipeline in the intake channel to connect the headworks to the conveyance pipeline.</p> <p>Fill the intake channel to cover the pipeline and create the intake operations and maintenance area (IO&MA).</p> <p>Construction of Phase I components would occur up to 24 hours per day, and up to 7 days per week during an in-water work window from July 1 to November 15.</p>	<p>Multiple elements to manage sediment accumulated at the intake would include a ramp on the upstream side of the roughened channel to help mobilize sediment over the feature; a vertical access pipe behind the screens to facilitate flushing sediment with a submerged hose and nozzle using screened water; and a series of pipes, valves and outlet channel at the Pipeline Intake and Sediment Management Area (PISMA) to flush sediment through the intake pipeline back to Icicle Creek.</p> <p>The PISMA would be placed at the former gatehouse location.</p>	<p>Replace the conveyance pipeline using cut and cover trenching on USFWS property (2,180 feet) and rehabilitate the pipeline by lining with CIPP on private parcels (approximately 4,000 feet). Construct several temporary access point Contractor Use Areas (CUAs) to provide ingress and egress for pipe lining on private lands.</p> <p>Replace the current control valve system at the sand settling basin on USFWS property with a new control valve vault to allow safe pipe filling operations.</p> <p>Decommission the existing pipeline and abandon this segment in place once control valve connections are made.</p> <p>All rehabilitation, replacement, and modernization of the LNFH intake and delivery facilities would conclude at the control valve system; the sand settling basin and inside and outside screen chambers would remain unaltered.</p> <p>Phase II construction would take place between 7:00 a.m. and 10:00 p.m., up to 6 days per week.</p>	<p>Maintain a 40 cfs water supply to LNFH during Phase I construction via a gravity-fed bypass pipeline connected to the existing conveyance pipeline approximately 200-300 feet below the intake construction area and through pumping with diesel-powered pumps from the spillway pool as needed.</p> <p>Maintain a 20 cfs water supply to LNFH during Phase II construction between April 17 to May 20, when pipeline replacement, lining with cure-in-place pipe (CIPP), and pipeline interconnections are underway. This would occur through pumping with diesel-powered pumps from the spillway pool adjacent to LNFH as needed.</p>	<p>Locate staging and storage sites for construction equipment and materials, and construction staff administration and vehicle parking, at various locations on LNFH grounds.</p> <p>Trucks hauling construction equipment and containing construction materials would turn around approximately 1.25 miles southwest of the intake access road, at the U.S. Forest Service (Forest Service) and Alpine Lakes Wilderness Area kiosk on Icicle Creek Road.</p> <p>Construction access to the conveyance pipeline would use existing roads, temporary access routes, and the pipeline right-of-way.</p>

Alternative	Intake and Fish Passage	Sediment Management	Conveyance Pipeline	Temporary Hatchery Water Supply	Access and Staging
C Preferred / Selected Alternative	Same as Alternative B	Same as Alternative B	Same as Alternative B except Reclamation would line the upper segment (520 feet) of the conveyance pipeline on USFWS property with CIPP instead of replacing it. As a result, the mature trees in the Icicle Creek riparian zone along this segment would not be removed. The length of the conveyance pipeline, from the PISMA to CUA 5 (4,520 feet, which includes the upper segment on USFWS property) would be lined with CIPP. The lower pipeline segment on USFWS property (1,660 feet) would be replaced.	Same as Alternative B	Same as Alternative B
D	Same as Alternative B except construction of Phase I components would be limited to workday hours of 7:00 a.m. to 10:00 p.m., 5 days per week, and up to 6 days a week, during an in-water work window from July 1 to October 31.	Same as Alternative B	Same as Alternative B	Same as Alternative B with the addition of maintaining a 40 cfs water supply to LNFH over an 8-month period from November 1, 2022 to June 30, 2023 during Phase I construction via two high-capacity diesel-powered pumps operating at the spillway pool 24 hours per day, 7 days per week. An operational third pump would be on site as a backup.	Same as Alternative B

Construction under Alternative D would occur over four construction seasons within the in-water work window. July 1 to August 15 is the approved in-water work window for Icicle Creek¹⁶. Extending the in-water work window to November 15 (Alternatives B and C) or October 31 (Alternative D) would be an exception to the general and approved in-water work window.

Phase II – All action alternatives would include replacement and lining of the conveyance pipeline during Phase II. Construction would occur during the workday hours of 7:00 a.m. to 10:00 p.m., 5 days per week, and up to 6 days per week. The majority of Phase II pipeline lining and some pipeline replacement construction would occur over three construction seasons during a 4- to 5-week period between April and May. Pipeline replacement would occur year-round where practicable. There would likely be temporal overlap between parts of Phase I and Phase II construction.

Under Alternatives B and D, 2,180 feet of pipeline would be replaced on USFWS property on the uppermost and lowest segments of pipeline; the remaining approximately 4,000 feet of pipeline would be lined with cure-in-place pipe (CIPP). Under Alternative C, Reclamation would line the entire upper segment (520 feet) of the conveyance pipeline on USFWS property with CIPP instead of replacing it. The length of the conveyance pipeline, from the Pipeline Intake and Sediment Management Area (PISMA) to contractor use area (CUA) 5 (4,520 feet, which includes the upper segment on USFWS property), would be lined with CIPP. There would be 1,660 feet of pipeline replacement on USFWS property on the lowest segments of pipeline on the Hatchery grounds proper. All pipeline segments lined with CIPP on private parcels would be the same as described under Alternative B. As a result of lining the upper pipeline segment on USFWS land under Alternative C, there would be approximately 1.17 fewer acres of surface disturbance as compared to Alternatives B and D, and fewer mature trees in the Icicle Creek riparian zone would be removed.

Phase III – This phase would be implemented by the USFWS under all action alternatives and would include revegetation of upland and riparian areas that are proposed to be disturbed during earlier phases of construction within the intake construction area. Revegetation would occur as soon as practicable after Phase I and Phase II construction activities are complete and would occur during the same workday hours as Phase II.

Reclamation will implement Best Management Practices (BMPs) and other environmental commitments to avoid or minimize environmental harm during Project construction and O&M. The list of BMPs used to complete the resource analyses is included in **Attachment A**.

Several federal and state regulatory permit approvals are required before construction begins. Reclamation will use the Washington State Joint Aquatic Resources Permit Application (JARPA) form to apply for applicable permits, including Clean Water Act (CWA) Section 404 Nationwide Permits and CWA Section 401 Water Quality Certification from the USACE, and Hydraulic Project Approval from the Washington Department of Fish and Wildlife (WDFW). Because the action alternatives include use of Icicle Creek Road on National Forest System lands, the construction

¹⁶ USACE 2018. Approved work windows for fish protection for all freshwaters excluding waters within national park boundaries, Columbia River, Snake River, and lakes by county and specific watercourse. Available at: https://www.nws.usace.army.mil/Portals/27/docs/regulatory/ESA%20forms%20and%20templates/work_windows%20all_freshwaters_except.pdf

contractor will secure the required road use approval from the U.S. Forest Service (Forest Service), most likely under a road use permit.

O&M activities would periodically occur on an as-needed basis as determined by Hatchery staff, including daily visual inspections of the proposed intake facilities. Hatchery O&M is subject to both the National Pollution Discharge Elimination System permit from the U.S. Environmental Protection Agency (EPA) and O&M consultations under the ESA Section 7 with NMFS¹⁷ and USFWS¹⁸. Extraordinary maintenance will continue to be handled on a case-by-case basis as determined to be necessary by the Hatchery.

Table 2, Comparison of Key Differences between Action Alternatives in the EIS, compares the key differences between the three action alternatives. Alternatives B and C would provide a reliable source of water to meet the purpose and need and would increase the likelihood of operational fish screens before May 2023 and full compliance as required in the 2017 NMFS Biological Opinion shortly after May 2023. Alternative D would also provide a reliable source of water to the LNFH but would not meet the Biological Opinion requirements until October 2025. Alternative D is included to provide a range of action alternatives for analysis and to demonstrate the tradeoffs in resource impacts and Project schedule to better inform the decision makers and the interested public per the NEPA process.

Environmentally Preferable Alternative

Section 1505.2(a)¹⁹ of the CEQ regulations requires the NEPA lead agency to identify the environmentally preferable alternative in the ROD. The environmentally preferable alternative is the alternative that causes the least damage to the biological, physical, and human environments and best protects, preserves, and enhances historical, cultural, and natural resources according to CEQ's 40 Most Asked Questions Number 6(a). Although CEQ regulations require the identification of the environmentally preferable alternative, it is not required that this alternative be adopted.

Alternative C is the environmentally preferable action alternative because it would cause the least damage to the biological, physical, and human environments of all the action alternatives, balancing the Project's impacts and benefits. Alternative C complies with NMFS current fish screening and fish passage criteria for anadromous fish passage facilities²⁰ and would reduce the amount of incidental take of anadromous salmonids, including Bull Trout and other fish species, that results

¹⁷ NMFS. 2017. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH) Consultation, Leavenworth National Fish Hatchery Spring Chinook Salmon Program (Reinitiation 2016). National Marine Fisheries Service, West Coast Region, Portland, Oregon.

¹⁸ USFWS. 2011. Biological Opinion for the O&M of the LNFH and effects on the threatened bull trout (*Salvelinus confluentus*) and its designated critical habitat. USFWS Reference No. 13260-2011-F-0048 and 13260-2011-P-0002. Wenatchee, Washington.

¹⁹ CEQ's Updates Regulations Implementing the Procedural Provisions of NEPA, effective September 14, 2020, were applied to the EIS and ROD.

²⁰ NMFS. 2011. Anadromous Salmonid Passage Facility Design. NMFS Northwest Region, Portland, Oregon.

from entrainment in the LNFH's current water delivery system. Alternative C would result in approximately 8.02 acres of surface disturbance. Of this, approximately 7.40 acres would be temporary disturbance and would be restored to pre-construction conditions. Approximately 0.62 acres would be within the footprint of permanent Project components and would not be restored to pre-construction conditions. Alternative C would result in approximately 1.17 fewer acres of surface disturbance than Alternative B and Alternative D. Additionally, fewer mature trees in the Icicle Creek riparian zone found in the upper segment of the conveyance pipeline on USFWS property would be removed under Alternative C than under Alternative B or Alternative D.

The No Action alternative means the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity going forward. The No Action alternative does not meet the requirements of an environmentally preferable alternative – to protect, preserve, and enhance historical, cultural, and natural resources. The No Action alternative would result in the continued incidental take of ESA-listed species. Under current, baseline conditions, all holding areas and intake structures incidentally take listed species. For Section 7 consultation with NMFS to remain valid, Reclamation and USFWS must implement the conservation actions to protect and preserve salmon and steelhead in Icicle Creek and the lower Wenatchee River. Under the No Action alternative, the water delivery system would not comply with NMFS current fish screening and fish passage criteria for anadromous fish passage facilities²² by May 2023. Non-compliance with the conservation measure, reasonable and prudent measures, and terms and conditions would require Reclamation and USFWS to reinitiate O&M consultation with NMFS. Under the No Action alternative, there would be no construction-related disturbances or impacts to non-aquatic resources. While no construction-related disturbances or impacts to non-aquatic resources is beneficial, there would be no protections or conservation measures implemented for ESA-listed species. For these reasons, the No Action alternative does not balance the Project's impacts and benefits and meet the intent of an environmentally preferred alternative.

Table 2. Comparison of Key Differences between Action Alternatives in the EIS

Element of Alternative	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Phase I Construction Schedule	Up to 24 hours per day, up to 7 days per week	Same as Alternative B	7:00 a.m. to 10:00 p.m. workday, up to 6 days per week
Phase II Construction Schedule	7:00 a.m. to 10:00 p.m. workday, up to 6 days per week ¹	Same as Alternative B	Same as Alternative B
In-water work window Season dates (including installation and complete removal of cofferdams) ²	July 1 to November 15	Same as Alternative B	July 1 to October 31
Phase I In-water work window Construction Seasons	2	Same as Alternative B	4
Construction Season (including out of water work)	2022 - 2024 Phase I: 2022-2023 Phase II: 2022-2024 Phase III: 2024	Same as Alternative B	2022 - 2025 Phase I: 2022-2025 Phase II: 2022-2024 Phase III: 2025
Fish Screens operational (date)	November 2022	Same as Alternative B	October 2023
Intake Facilities compliant with regulatory criteria ³ (date)	November 2023	Same as Alternative B	October 2025
Conveyance Pipeline replaced (feet)	2,180	1,660	Same as Alternative B
Conveyance Pipeline CIPP-lined (feet)	4,000 (includes segments on private parcels only)	4,520 (includes segments on private parcels and the upper segment on USFWS property)	Same as Alternative B
Temporary Hatchery Water Supply needed during Phase I construction via pumping	Total of approximately 10 days in 2022 (estimated 7 and 3 days in July and November, respectively); 24 hours per day, 7 days per week	Same as Alternative B	Total of approximately 8 months and 10 days in 2022 and 2023 (7 days in July 2022, 8 months from November 1, 2022 to June 30, 2023, and 3 days in October 2023; 24 hours per day, 7 days per week)

Element of Alternative	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Temporary Hatchery Water Supply needed during Phase II construction via pumping	April 17 – May 20, 2022 ⁴ (5 weeks) April 17 – May 20, 2023 ⁴ (5 weeks) April 17 – May 20, 2024 ⁴ (5 weeks)	Same as Alternative B	April 17 – May 20, 2022 ⁴ (5 weeks) April 17 – May 20, 2023 ^{4, 5} (5 weeks) April 17 – May 20, 2024 ⁴ (5 weeks)

¹Reclamation analyzed a 7:00 a.m. to 10:00 p.m. workday in conformance with the Chelan County Noise Ordinance (Chelan County Code Chapter 7.35) and WAC 173-60-040; this therefore represents the most conservative level of impacts. However, the Project specifications require workday hours of 7:00 a.m. to 7:00 p.m., 5 days a week, with potential extensions (to 10:00 p.m. or 6 days per week) requiring Reclamation's COR approval.

²July 1 to August 15 is the approved in-water work window for Icicle Creek. Extending the in-water work window to November 15 (Alternatives B and C) or October 31 (Alternative D) would be an exception to the general and approved in-water work window.

³Compliance with NMFS current screening and fish passage criteria for anadromous fish passage facilities is achieved with full build-out and operation of the screened intake structure, low-flow boulder weir fishway, and roughened channel.

⁴Pumping would take place between April 17 and May 13 during the Phase II construction period, with provisions for emergency extension up to May 20 during the Phase II construction period. Reclamation used the April 17 to May 20 timeframe for analysis in the EIS as a conservative representation of impacts that could be possible.

⁵The temporary Hatchery water supply needed during Phase I construction via pumping would take place November 1, 2022 to June 30, 2023, which covers the April 17 – May 20 period in 2023.

Decision

This EIS complies with NEPA by supporting federal decisions related to the SWISP Project. It provides necessary information for approving, modifying, or denying a proposal. Several federal and state regulatory permit approvals and decisions will be required before construction begins. Reclamation will obtain all required regulatory permits prior to construction implementation. Reclamation will apply for applicable permits using the Washington State JARPA form. Permits that will be obtained include:

- USACE Section 404 Nationwide Permits
- Ecology Section 401 Water Quality Certification
- WDFW Hydraulic Project Approval

All action alternatives would also include the use of Icicle Creek Road on National Forest System lands, between the Snow Lakes Trailhead and the Forest Service and Alpine Lakes Wilderness Area kiosk. As a result, the construction contractor would secure the required road use approval from the Forest Service, most likely under a road use permit. The kiosk is approximately 1.25 miles southwest of the intake facilities.

Bureau of Reclamation

The decisions for Reclamation are as follows:

- Whether or not to rehabilitate, replace, and modernize the LNFH surface water intake facilities on Icicle Creek.
- Whether or not to rehabilitate, replace, and modernize the 1.1-mile surface water conveyance pipeline from the intake facilities on Icicle Creek to the LNFH fish production facilities.

Based on the analysis in the Final EIS, SWISP Project Biological Assessment, SWISP USFWS Biological Opinion, applicable federal and state regulatory documents and permits, and this ROD, as well as input from the Tribes, federal, state, and local agencies, and public comments, **Reclamation selects the preferred alternative described in the Final EIS (Alternative C) as the Selected Alternative for the rehabilitation of the LNFH surface water intake and delivery system on Icicle Creek.** Further, Reclamation has determined, and the NMFS and USFWS biological opinions demonstrate, based on the best available commercial and scientific information, that Reclamation's implementation of the Selected Alternative will not jeopardize listed species or adversely modify or destroy critical habitat.

Reclamation's decision is based on how the alternatives meet the Project's purpose and need, the magnitude of environmental effects, the ability to apply measures to reduce or offset those effects, and compliance with the ESA biological opinions. The No Action alternative does not meet the purpose of and need for the action. While all the action alternatives would meet the purpose of and

need for the action, Alternative C would cause the least amount of damage to the biological, physical, and human environments. All practicable means to avoid or minimize potential adverse environmental effects, and measures to conserve federally listed species, were analyzed and incorporated into the action alternatives, including Alternative C. **Attachment A**, Best Management Practices, identifies practices that will be implemented. These practices are the same as those included in Final EIS as Appendix B, Best Management Practices.

As described in *Environmental Issues Evaluated*, the action alternatives have the potential to result in adverse environmental effects. Compliance with the BMPs listed in **Attachment A**, and with environmental laws, regulations, consultation stipulations and conditions, and required permits, would ensure the action alternatives minimize or avoid direct impacts on the majority of resources evaluated.

U.S. Fish and Wildlife Service

The USFWS decision is whether to support the construction of the SWISP Project by continuing the IAA and O&M of the proposed facilities once constructed.

The USFWS selects the preferred alternative (Alternative C) described in the Final EIS for the ongoing O&M of the LNFH. The Service has reviewed the ROD and the Final EIS, including the purpose and need, the stated objectives, the alternatives analyzed, including the No Action alternative, the effects analysis for each alternative, and practicable means to avoid or minimize environmental harm. The USFWS has also reviewed the SWISP Project Biological Assessment²¹, and the SWISP USFWS Biological Opinion²² as well as input from the associated Tribes; federal, state, and local agencies; and public comments. All applicable laws, regulations, executive orders, and local government plans were considered in evaluation of alternatives.

The USFWS has determined that the Final EIS adequately evaluates and describes impacts on the human environment and the Selected Alternative is the most effective alternative for avoiding, minimizing, and mitigating impacts to the Hatchery and other fish and wildlife resources. To this end, the Selected Alternative will provide for upstream and downstream fish passage and minimize entrainment of fish in the water delivery system. The proposed improvements in the Selected Alternative will best meet the purpose and need for action by enhancing the Hatchery's operational capabilities, ensuring improved worker safety, and benefiting fish in Icicle Creek, including threatened and endangered species.

²¹ Reclamation. 2020. Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage Project Biological Assessment. Columbia-Pacific Northwest Regional Office. Boise, Idaho. October 2020.

²² USFWS. 2021. Endangered Species Act Section 7 Biological Opinion for the Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage (SWISP) Project in Chelan County, Washington. USFWS Reference No. 01EWF00-2021-F-0063. Washington Fish and Wildlife Office, Wenatchee, Washington.

Environmental Issues Evaluated

During public scoping, Reclamation categorized substantive comments received into 35 issue categories. The following summaries highlight key issues identified during public scoping and addressed in the EIS. The full list of summaries is available in the final scoping report, which was published on Reclamation's SWISP Project website²³ in June 2020.

- **Fisheries and Aquatic Ecosystems**—Commenters stated concerns about impacts on listed fish and riparian habitat. Commenters requested that the EIS evaluate the functions and values of riparian habitat and disclose impacts in terms of expected changes in the resource function. Commenters stated that Reclamation should minimize ecosystem damage and reduce any detrimental materials from entering Icicle Creek during construction and restore temporarily disturbed areas.
- **Water Quality**—Commenters stated that the proposed construction in Icicle Creek must not exceed the State Water Quality Standards for Surface Waters (WAC 173-201A), nor exceed the Aquatic Life turbidity criteria found in WAC 173-201A- 200(1)(e). The EIS should describe any relevant total maximum daily load (TMDL) allocations for Icicle Creek, describe the effects on sediment loading and transport in Icicle Creek, and describe how BMPs, mitigation measures, and monitoring would ensure adequate protection of water quality.
- **Tribal Interests**—Commenters expressed concern that the traditional and accustomed uses and activities of the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation) and Confederated Tribes of the Colville Reservation (Colville Tribes), specifically Tribal fishery activities in Icicle Creek, may be impacted by the Project, and that Reclamation should request Government-to-Government Consultation with these federally-recognized Tribes to ensure Tribal Treaty and federally protected harvest rights are maintained.

For all alternatives, the potential effects were evaluated, as appropriate. All resources went through an analysis of alternatives; these analyses are included in the SWISP Project EIS Resource Reports, which are available on the SWISP Project website:

<https://www.usbr.gov/pn/programs/leavenworth/swisp/deis.html>

Chapter 3, Affected Environment and Environmental Consequences, of the Final EIS characterizes the existing environment, particularly for the natural and human resources most affected by the alternatives carried forward for analysis. The chapter also identifies the impacts that would occur on the resources as a result of Project construction and O&M. The following resources were analyzed in detail in the EIS: water resources, fisheries (including special status species and aquatic ecosystems), noise and vibration, transportation and traffic, recreation, environmental justice, public health and safety, and Tribal interests. These resources were analyzed in detail because of the potential for resource impacts from the action alternatives or to meet Reclamation policy.

²³ The SWISP Project website can be accessed at: <https://www.usbr.gov/pn/programs/leavenworth/swisp/index.html>.

Table 3, below, briefly summarizes the impacts on resources and resource uses under each alternative, including Alternative A – No Action. Other resources or resource uses not analyzed in detail in the EIS may be affected to a negligible or minor amount.

Public Involvement

On April 24, 2020, Reclamation published the Notice of Intent (NOI) to prepare an EIS in the *Federal Register* for the SWISP Project, announcing the beginning of a public scoping period to solicit public comments and to identify issues. Reclamation solicited comments from cooperating and participating agencies, Tribes, other interested parties, and the public through various meetings, including a web-based virtual public meeting (VPM) room that was available 24 hours a day during the public scoping period. The public scoping period ended on May 26, 2020. The description and outcomes of the scoping process are summarized in a scoping report, which was published on Reclamation's SWISP Project website²⁴ in June 2020.

On November 20, 2020, the 45-day public comment period for the Draft EIS began with the document's publication in the *Federal Register*. The public had the opportunity to provide input until January 4, 2021. Information about the availability of the Draft EIS was distributed to the cooperating and participating agencies, interested parties, and individuals and businesses on the Project mailing list. The Draft EIS was also posted on the Project website for viewing and download: <https://www.usbr.gov/pn/programs/leavenworth/swisp/deis.html>. Similar to public scoping, a VPM website was available 24 hours a day during the public comment period. Reclamation hosted two live video teleconferences on December 8, 2020 and December 10, 2020. In each video teleconference, Reclamation provided a short presentation, followed by a question and answer session, during which Reclamation and USFWS management and resource specialists were available to discuss Project information and questions from meeting participants. After all questions were addressed, the public comment session began, where participants were able to provide verbal public comment on the Draft EIS. Interested parties could submit comments through the VPM website, video teleconferences, by email, or by U.S. mail. All comments were reviewed and considered for the Public Comment and Response Report in Appendix E of the Final EIS.

²⁴ The SWISP Project website can be accessed at: <https://www.usbr.gov/pn/programs/leavenworth/swisp/index.html>.

Table 3. Summary Comparison of Resource Impacts

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Air Quality and Climate	Fugitive dust, air pollutant, and greenhouse gas emissions related to O&M would continue. These include emissions from vehicles and equipment, dust from travel on unpaved access roads, and emissions from periodic sediment removal operations.	Construction would generate temporary and localized fugitive dust, greenhouse gas emissions, and other air pollutants, which would be minimized using standard dust control and other BMPs. Contribution to global greenhouse gas emissions are expected to be well below 25,000 metric tons of carbon dioxide equivalents per year, which is the greenhouse gas reporting requirement threshold under 40 CFR 98. The types of emissions from O&M would be similar but reduced compared with Alternative A because less maintenance would be needed.	Impacts from construction would be similar to Alternative B, but emissions would be slightly reduced because there would be less construction activity associated with the shorter length of conveyance pipeline being replaced. Contribution to global greenhouse gas emissions would be well below the greenhouse gas reporting requirement threshold under 40 CFR 98 of 25,000 metric tons of carbon dioxide equivalents per year. Emissions associated with O&M of the LNFH would be the same as described under Alternative B.	Impacts from construction would be similar to Alternative B, but emissions would be greater because of the increased Phase I construction timeline and the need for additional diesel-powered pumping for the temporary Hatchery water supply. Contribution to global greenhouse gas emissions would be well below the greenhouse gas reporting requirement threshold under 40 CFR 98 of 25,000 metric tons of carbon dioxide equivalents per year. Emissions associated with O&M of the LNFH would be the same as described under Alternative B.
Geology and Soils	There would be no new impacts to geology or soils from construction. Sediment from upstream sources would continue to be diverted from Icicle Creek into the Hatchery, and it would periodically be removed and stored on-site.	Construction would result in localized effects from ground disturbance and movement of geologic materials. BMPs to minimize surface disturbance, control erosion, and reclaim temporarily disturbed areas would reduce impacts. Permanent facilities would result in the irretrievable commitment of soil resources in limited areas.	Impacts would be similar to Alternative B, but slightly reduced because there would be less construction activity associated with the shorter length of conveyance pipeline being replaced.	Impacts would be the same as described under Alternative B.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Water Resources	Sediment would continue to be diverted from Icicle Creek, removing its contribution to stream geomorphology and stream conditions. There would be no change in compliance with water quality standards (for temperature, dissolved oxygen, pH, and turbidity) outlined in Chapter 173-201A WAC.	Intake rehabilitation would greatly reduce sediment diversion, allowing it to remain in the creek and contribute to stream conditions. Surface disturbances from construction within the 100-year floodplain would occur. Surface disturbances and equipment use in and adjacent to Icicle Creek could result in contaminants (e.g., soil, lubricants, fuel, etc.) entering the creek and affecting water quality. There would be two weeks of cofferdam use during November, a month when prolonged precipitation or rain-on-snow events could overtop, dislodge, or destroy the cofferdam. Cofferdam failure during high flows could release tons of rock into Icicle Creek and a plume of accumulated sediment. Shade-producing trees would be removed, allowing an increase in water temperature and a lowering of dissolved oxygen. BMPs and permit conditions would reduce impacts.	Impacts would be similar to Alternative B, but slightly reduced because less conveyance pipeline would be replaced, and fewer shade-producing trees would be removed. As a result, effects from increased water temperature and lowered dissolved oxygen would be reduced.	Impacts would be similar to those described under Alternative B, except Alternative D would involve additional seasons of cofferdam use (four construction seasons instead of two). This would increase surface disturbances and equipment use in and adjacent to Icicle Creek that could result in contaminants (e.g., soil, lubricants, fuel, etc.) entering the creek and affecting water quality. Additionally, cofferdam use would end on October 31 each year, avoiding cofferdam use during November when prolonged precipitation or rain-on-snow events could overtop, dislodge, or destroy the cofferdam.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Biological Resources	<p>Alternative A would not comply with current NMFS fish screening and passage criteria. Existing intake facilities do not comply with current NMFS criteria for anadromous salmonids, and result in take of ESA-listed fish. Existing intake facilities impact fish passage and aquatic habitat quantity, quality, and connectivity. The NMFS Biological Opinion covering LNFH operations requires the LNFH comply with current criteria by May 2023. Lead-based materials are present at existing Hatchery infrastructure; these may enter the environment causing exposure to aquatic species. There would be no impacts on vegetation or terrestrial wildlife species.</p>	<p>Alternative B would comply with current NMFS fish screening and passage criteria for anadromous salmonids and would reduce take of ESA-listed fish compared with current conditions. Construction would temporarily affect ESA-listed fish, critical habitat, and EFH, but BMPs and conservation measures developed during ESA Section 7 consultation with the USFWS, and in the NMFS 2017 FPRP III programmatic Biological Opinion, would reduce effects. Fish passage and aquatic habitat quantity, quality, and connectivity would be improved post Project implementation. Lead-containing materials on Hatchery infrastructure would be removed and disposed of in accordance with CFRs and associated safety regulations. Effects on vegetation would be minor and effects on terrestrial wildlife species would be minor or negligible.</p>	<p>Alternative C would comply with current NMFS fish screening and passage criteria for anadromous salmonids and would reduce take of ESA-listed fish compared with current conditions. Impacts on fish and aquatic habitat and vegetation would be similar to Alternative B, but slightly reduced because less conveyance pipeline would be replaced and fewer shade-producing trees would be removed. Effects on terrestrial wildlife species would be the same as described under Alternative B.</p>	<p>Alternative D would comply with current NMFS fish screening and passage criteria for anadromous salmonids and would reduce take of ESA-listed fish compared with current conditions. The types of impacts on fish and aquatic habitat would be similar to Alternative B, but the time frame over which they occur would differ. This may increase impacts to fish and aquatic habitat because, although the daily and seasonal timeframe would be shorter, the total time needed to complete the Project would be longer. There would also be additional impacts from Phase I construction temporary Hatchery water supply pumping for a longer period, inundation of the partially constructed intake headworks after cofferdam removal, and cofferdam installation and removal efforts before and after each additional in water work window. The fish species affected may differ relative to Alternative B due to the 2-week shorter in-water work window and the workday hours of 7:00 a.m. to 10:00 p.m. Effects on vegetation and terrestrial wildlife species would be the same as described under Alternative B.</p>

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Cultural Resources	Continued deterioration of the existing intake facilities and conveyance pipeline may unavoidably adversely affect the overall integrity of the LNFH Historic District. There would be no effect on documented archaeological resources eligible for listing in the National Register of Historic Places (NRHP) or documented Native American Traditional Cultural Properties (TCPs).	There would be no adverse effect on historic properties, archaeological sites eligible for listing in the NRHP, or Native American TCPs per the <i>no adverse effect</i> determination by the State Historic Preservation Officer on March 12, 2020. Professional archaeological monitoring would occur, and an inadvertent discovery plan would be followed.	Impacts would be the same as described under Alternative B.	Impacts would be the same as described under Alternative B.
Land Use, Utilities, and Service Systems	There would be no changes to existing intake facilities. The existing easement containing the underground conveyance pipeline would remain in effect. There would be no change in the current land uses, zoning, landownership, entitlements, or existing utilities aside from routine maintenance or future improvements.	Existing intake facilities and the conveyance pipeline would be modified, replaced, rehabilitated, and new intake elements would be constructed. Effects on land use would be unchanged. There would be no change in the current land uses, zoning, landownership, or entitlements. Relocation of at least one power pole and minor upgrades to the overhead electrical infrastructure could result in a temporary lapse in electrical supply to area users.	Impacts would be the same as described under Alternative B.	Impacts would be the same as described under Alternative B.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Noise and Vibration	There would be no new construction activity that would affect ambient sound levels. Sensitive noise receptors would continue to experience community and traffic noise, including peak season noise levels in exceedance of EDNA Class A levels. There would continue to be noise and occasional vibration associated with current O&M of existing intake facilities and the conveyance pipeline.	Equipment and vehicle use associated with construction would raise ambient noise levels for sensitive receptors and increase vibration. Expected loudest noise levels would be generated by a pneumatic tool (Phase I construction) and hot air blower (Phase II construction). Increases in ambient noise levels could occur for up to 24 hours per day, and up to 7 days per week during construction. Noise BMPs would reduce effects.	Impacts would be similar to those described under Alternative B. However, under Alternative C, starting at the PISMA, the conveyance pipeline would be lined with CIPP to the USFWS parcel boundary, which could result in a slight increase in the duration of noise from use of the hot air blower. Additionally, Alternative C would require fewer truck trips to access the intake construction area, resulting in less construction noise for sensitive receptors along Icicle Road/Icicle Creek Road.	There would be no Phase I construction work from 10:00 p.m. to 7:00 a.m. under Alternative D, which would reduce daily noise impacts as compared with Alternative B. However, the overall duration of Phase I construction noise impacts would be experienced over four years under Alternative D, as compared to two under Alternative B. Additionally, the two diesel-powered pumps associated with the temporary Hatchery water supply for Phase I construction would operate 24 hours per day and 7 days per week for a period of 8 months, as opposed to approximately 10 days under Alternative B.
Transportation and Traffic	There would be no change in the Level of Service (LOS), and drivers would not experience increase or decrease in delays or frustrations. Routine or extraordinary maintenance could impact traffic; the timing and extent of potential impacts would depend on the nature, extent, and timing of maintenance.	Heavy vehicle traffic using Icicle Road and Icicle Creek Road and the turnaround at the Forest Service and Alpine Lakes Wilderness kiosk would temporarily reduce the LOS in these areas. Prohibiting parking at the turnaround would reduce access. Impacts could be greatest during weekends and in summer when traffic volumes and demands for access are highest. Traffic control BMPs would reduce effects.	Temporary reductions in LOS would be less than those described under Alternative B because there would be fewer heavy equipment vehicle trips accessing the intake construction area. Impacts on access would be the same as described under Alternative B.	Temporary reductions in LOS would be similar to those described under Alternative B during daytime hours. Overall daily impacts to traffic and transportation would be reduced under Alternative D as compared with Alternative B, as construction activities after 10:00 p.m. would not occur. However, these impacts would be experienced over a total of four construction seasons under Alternative D, instead of two seasons under Alternative B.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Recreation	There would be no construction-related changes to recreational opportunities, conditions, or access. More frequent maintenance may temporarily impact recreational conditions or access.	Temporary impacts to recreational conditions and access would occur during construction, which may temporarily depress recreational visitation rates by approximately 8 percent. Long-term benefits to recreational fishing would result from enhanced fish passage and aquatic ecosystem productivity. Noise from Phase II construction on private lands along the conveyance pipeline alignment could be audible to visitors and guests utilizing indoor and outdoor private recreational facilities. Light from Phase I nighttime construction could potentially affect visitors and guests at recreation facilities, but impacts are anticipated to be minor.	Impacts on recreational opportunities, conditions, and access would be similar to those described under Alternative B, but impact intensity would be reduced because there would be less excavation of the conveyance pipeline and associated truck traffic and delays.	There would be less of a decline in annual recreation visits at the Snow Lake Trailhead (6 percent) as compared to Alternative B due to a shorter in-water work window. However, overall impacts to recreationists would be experienced over a longer total period compared with Alternative B as Phase I construction-related disturbances, including noise, traffic delays, and temporary loss of recreationist parking along Icicle Creek Road and at the Snow Lakes Trailhead would extend for an additional two years, including during the peak recreation season for two additional seasons, compared with Alternative B. Impacts from Phase II construction would be the same as those described under Alternative B.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Visual Resources	Visual quality would remain unchanged and there would be no additional impacts to the viewshed. O&M activities would continue to be largely naturally screened from view to the casual observer.	Temporary impacts would occur from construction-related activities such as use of heavy machinery and warning signs, which would sharply contrast with the natural lines, form, and color within the existing viewshed, and construction noise, light, and level of the activity would draw the attention of the casual observer. Impacts from vegetation removal would diminish over time as planted and seeded vegetation matured. Impacts from O&M would be the same as Alternative A or slightly less due to an expected reduction in frequency of O&M activities.	Impacts would be similar to those described under Alternative B but would be reduced because there would be less construction-related activity due to lining a greater length of the conveyance pipeline. Disturbance in the Icicle Creek riparian zone would be reduced, reducing visual impacts to the characteristic landscape.	Impacts would be similar to those described under Alternative B, however overall impacts to visual resources would be experienced over a longer total period compared with Alternative B as Phase I construction-related impacts would extend over four years, as compared with two years under Alternative B.
Socioeconomics and Environmental Justice	Existing recreational opportunities, including recreational fishing in Icicle Creek and related values and spending, could be affected by decreased fish production due to degraded facilities. Ongoing impacts on fish passage from LNFH operations would continue, and LNFH fish production, Tribal fish programs, and the quality of	Temporary recreational access constraints and delays would reduce recreational visits and related values and spending. Similarly, there would be temporary economic impacts in terms of value of lost time for motorists due to delays during constriction. There would not be disproportionate environmental	Impacts on socioeconomics would be similar to those described under Alternative B, but intensity of impacts would be reduced given that the degree of economic impacts from traffic disturbances would be reduced. Impacts on environmental justice would be the same as Alternative B.	Impacts on socioeconomics would be the same as described under Alternative B, but the impacts would be experienced over a longer total period compared with Alternative B, as Phase I construction-related impacts would extend over four years, as compared with two years under Alternative B.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Socioeconomics and Environmental Justice (continued)	the Tribal fishery could be jeopardized in the future due to continued degradation of existing facilities. There would not be disproportionate environmental effects on low-income, minority and Tribal populations.	effects on low-income, minority or Tribal populations.	(see above)	Impacts on environmental justice would be the same as Alternative B.
Hazardous Materials and Public Health and Safety	Lead-based materials are present at existing Hatchery infrastructure, these may enter the environment causing exposure to LNFH workers and aquatic species. Unsafe work conditions for LNFH workers, particularly during frazil ice events, would continue.	Lead-based materials on Hatchery infrastructure would be removed in accordance with CFRs and associated safety regulations. Construction activities occurring from 10:00 p.m. to 7:00 a.m. could temporarily increase the risk of vehicle accidents, and the associated construction noise and light from during this period may temporarily affect nearby residents and guests. Long-term work conditions would be improved, which would decrease risk of worker injury.	Impacts would be the same as described under Alternative B.	Impacts due to hazardous materials would be the same as described under Alternative B. The two additional Phase I construction seasons would continue the risk of impacts to public health and safety described under Alternative B for an additional two years. Because Phase I construction work would not take place past 10:00 p.m. under Alternative D, the risk of vehicular accidents and noise impacts to sensitive receptors near the intake structure from 10:00 p.m. to 7:00 a.m. would be reduced as compared with Alternative B. Noise levels would exceed the nighttime Class A environmental designation for noise abatement of 45 decibels A-weighted or less for several residences off East Leavenworth Road and Cemetery Road near the spillway pool resulting from diesel-powered pumping for the Phase I temporary Hatchery water supply for an 8-month period.

Resource Topic	Alternative A – No Action	Alternative B (Proposed Action)	Alternative C (Preferred Alternative)	Alternative D
Tribal Interests	There would be no impacts on Indian sacred sites, Indian Trust Assets (ITAs), or traditionally and culturally important hunting or plant gathering areas because these interests are not present in the Analysis Area. There would be no changes in access to or activities at the Wenatshapam Fishery. Ongoing impacts on fish passage from LNFH operations would continue, and LNFH fish production, Tribal fish programs, and the quality of the Tribal fishery could be jeopardized in the future due to continued degradation of existing facilities.	There would be no impacts on Indian sacred sites, ITAs, and traditionally and culturally important hunting or plant gathering areas, as described under Alternative A. No adverse impacts to access to the Wenatshapam Fishery are anticipated. Fishing activities could be temporarily impacted during construction from noise disturbance and reduced fishing area from pump screen boxes in the spillway pool. Temporary Hatchery water supply pumping activities at the spillway pool may occur during the same time as scaffolding repair, ceremonial, and fishing activities, but would not impact the ability of the Tribes to perform these functions. Improved fish passage, reduced potential for fish entrainment, and increased Hatchery production reliability would benefit the Tribal fishery.	Impacts would be the same as described under Alternative B. There would be slightly less disturbance to vegetation that could support culturally important plants; however, vegetation in the Analysis Area has not been identified as culturally important to date.	There would be no impacts on Indian sacred sites, ITAs, and traditionally and culturally important hunting or plant gathering areas as described under Alternative B. Temporary impacts on the Tribal fishery would be the same as described under Alternative B, but the impacts would be experienced over a longer total period compared with Alternative B, as Phase I construction-related impacts would extend over four years, as compared with two years under Alternative B. Diesel-powered pumping from the spillway pool would occur over a period of 8 months during Phase I of construction and could result in temporary noise or displacement impacts to Tribal fishers.

Tribal Coordination, Communication, and Consultation

On April 14, 2020, Reclamation sent letters to notify the Yakama Nation and Colville Tribes of the publication of the NOI for the SWISP Project EIS, to invite the Tribes to participate in the EIS process as a cooperating agency, and to invite the Tribes to formally consult on the Project on a Government-to-Government basis. EO 13175 requires federal agencies to coordinate and consult on a Government-to-Government basis with sovereign Native American Tribal governments whose interests may be directly and substantially affected by activities on government-administered lands. Reclamation held kickoff meetings with both Tribes' Natural Resources Department staff. Reclamation provided a copy of the presentation to be shared with the respective Tribal Councils. Although outreach, communication, and coordination with the Tribes has continued throughout the NEPA process, Reclamation has not received a request for formal Government-to-Government consultation from either Tribe. Continued communication and coordination will help to ensure that management actions are consistent with rights retained by Tribes and that the concerns of Tribal groups are considered.

Endangered Species Act

Reclamation has held meetings with USFWS and NMFS to assess potential ESA Section 7 consultation requirements for the Project. These included the 30 percent, 60 percent, 90 percent, and Final Design, Permitting, and ESA meetings, in addition to other meetings. In 2008, NMFS and USFWS prepared the *ESA Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington State Fish Passage and Habitat Enhancement Restoration Programmatic (FPRP)*. The FPRP provided ESA coverage by both NMFS and USFWS for the USACE's Nationwide Permit program. The USACE has reinitiated Section 7 Consultation with USFWS; however, a Biological Opinion covering their Nationwide Permit program has not been completed and the temporary extension of the current Biological Opinion has expired. Therefore, to comply with ESA Section 7(a)(2) and 50 CFR 402, Reclamation prepared a biological assessment for USFWS to determine the potential impacts of the agency preferred action on the threatened Bull Trout (*Salvelinus confluentus*) and its designated critical habitat and the gray wolf (*Canis lupus*).

Reclamation's ESA Section 7 consultations for the SWISP Project covers the construction of the proposed Project. The O&M of the existing structures and SWISP Project's new and rehabilitated

facilities will be covered under the Hatchery's existing NMFS Biological Opinion²⁵, and the Hatchery has reinitiated consultation with USFWS' Ecological Services for the effects of O&M on species under their jurisdiction (e.g., Bull Trout).

The SWISP Project Biological Assessment was received by USFWS on October 16, 2020. On November 13, 2020, USFWS responded to Reclamation's request for both formal and informal consultation on the SWISP Project. The information provided by Reclamation was determined to be sufficient to complete informal consultation on the gray wolf and to start the official formal consultation for Bull Trout and its designated critical habitat²⁶. The USFWS issued a Biological Opinion for Bull Trout and its designated critical habitat on March 4, 2021, thereby concluding ESA Section 7 formal consultation²⁷. The USFWS' Biological Opinion states that the action, as proposed, is not likely to jeopardize the continued existence of the Bull Trout and is not likely to destroy or adversely modify designated critical habitat. A term and condition requiring monitoring and reporting was included in the Incidental Take Statement to implement the stipulated reasonable and prudent measure (see **Section A.4 in Attachment A**).

In consultation with NMFS, it was determined that Reclamation will use the *Programmatic ESA Section 7(a)(2) Biological Opinion and the Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Seattle District Corps of Engineers Permitting of Fish Passage and Restoration Action in Washington State* (FPRP III) from NMFS as part of Section 7(a)(2) of the ESA. The FPRP III provides ESA coverage for 12 categories of actions related to aquatic habitat restoration under the USACE's Nationwide Permit authority. NMFS, USACE, and Reclamation agreed that the SWISP Project would fall under the programmatic biological opinion. As the lead federal agency for the SWISP Project, Reclamation submitted the FPRP Project Information Form to NMFS on November 17, 2020. NMFS certified the SWISP Project under the FPRP on November 18, 2020, thereby concluding ESA Section 7 consultation with NMFS. The USACE has received a copy of the SWISP Project FPRP certification from NMFS.

National Historic Preservation Act

The USFWS, acting as the lead agency for National Historic Preservation Act compliance for the SWISP Project, consulted with the Washington State Department of Archaeology and Historic Preservation (DAHP), the Yakama Nation Cultural Resource Program, and the Colville Tribes Tribal Historic Preservation Officer (THPO) to identify historic properties. Although the LNFH

²⁵ NMFS. 2017. Programmatic Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Seattle District Corps of Engineers Permitting of Fish Passage and Restoration Action in Washington State (FPRP III). West Coast Region, Portland, Oregon.

²⁶ USFWS. 2020. Letter of Concurrence for Consultation on the Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage Project. Signed November 13, 2020. USFWS Washington Field Office, Lacey, Washington.

²⁷ USFWS. 2021. Endangered Species Act Section 7 Biological Opinion for the Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage (SWISP) Project in Chelan County, Washington. USFWS Reference No. 01EWF00-2021-F-0063. Washington Fish and Wildlife Office, Wenatchee, Washington.

complex was listed on the National Register of Historic Places (NRHP) in 1998, the surface water intake, gatehouse, and conveyance pipeline were found to be non-contributing elements of the Hatchery complex at the time of listing. On February 11, 2020, the USFWS requested the DAHP concur with the determination that Alternative B (the proposed action) would have no adverse effect on historic properties (36 CFR 800.4(d)(1)). On February 12, 2020, the USFWS requested the Yakama Nation Cultural Resource Program and the Colville Tribes THPO concur with the determination that Alternative B (the proposed action) would have no adverse effect on historic properties (36 CFR 800.4(d)(1)) and requested input regarding sites of religious or cultural significance.

On March 12, 2020, the DAHP concurred with the USFWS' determination of no adverse effect, with stipulations requiring preparation of an Inadvertent Discovery Plan and conducting archaeological monitoring during construction. On April 14, 2020, the Colville Tribes THPO concurred with the USFWS' determination that Alternative B (the proposed action) would have no adverse effect on historic properties and no additional cultural resource identification efforts are necessary. Because the impacts to cultural resources are identical to or less than Alternative B, Alternatives C and D would also have no adverse effect on historic properties. To date, the USFWS has not received a response from the Yakama Nation Cultural Resource Program. The law requires the federal agency to consult with affected Tribes but does not require Tribes to respond to the federal agency. The USFWS Zone Archaeologist has prepared a *Plan and Procedures for the Inadvertent Discovery of Cultural Resources and Human Remains* (Inadvertent Discovery Plan) in advance of Project implementation.

Clean Water Act

Reclamation held meetings with the USACE Seattle District Regulatory Branch to assess potential permitting requirements for the SWISP Project. These included the 30 percent, 60 percent, 90 percent, and Final Design, Permitting, and ESA meetings, in addition to other meetings. Reclamation complied with the CWA by submitting the JARPA for review under USACE's CWA Section 404 and Ecology's CWA Section 401 permitting programs. USACE, as a cooperating agency on this project, is not signing this ROD but will use the Final EIS and ROD, the JARPA application, and other applicable supporting documents to issue the necessary permits under CWA Section 404.

In accordance with Section 404 of the CWA, the USACE intends to issue the following Nationwide Permits for the Project: Nationwide Permit 27, Aquatic Habitat Restoration, Enhancement, and Establishment Activities, and Nationwide Permit 33, Temporary Construction, Access, and Dewatering. Reclamation submitted the JARPA to the USACE on October 16, 2020. The Pre-Construction Notification/Joint Application Form was logged as received on October 16, 2020. The Pre-Construction Notification was determined complete on November 18, 2020. Reclamation will provide the SWISP Project Biological Opinion from USFWS and the signed ROD to USACE to complete the JARPA permitting package. The USACE intends to issue the Nationwide Permits no later than July 22, 2021.

Reclamation held meetings with Ecology to assess potential permitting requirements for the Project. These included the 30 percent, 60 percent, 90 percent, and Final Design, Permitting, and ESA Meetings, in addition to other meetings. Under Section 401 of the CWA, a federal permit to conduct an activity that may affect water quality in the State of Washington is subject to a water quality certification request. In response to the CWA regulations which went into effect on September 11, 2020, Reclamation submitted the Section 401 Water Quality Certification Pre-Filing Meeting Request Form to Ecology on October 2, 2020. Ecology did not request a meeting with Reclamation and requested that Reclamation not submit the JARPA to them. Ecology is working closely with the USACE to ensure the SWISP Project certifies under the USACE's Nationwide Permit Program in lieu of issuing an individual water quality certification.

Additional Coordination

The Final EIS complies with 40 CFR 1502.17 and contains a summary that identifies all alternatives, information, and analyses submitted by state, Tribal, and local governments, and other public commenters for consideration by the lead and cooperating agencies in developing the Final EIS. Input was submitted during the EIS development process through cooperating and participating agency meetings, design team meetings, the public scoping comment period, and the Draft EIS public comment period.

Reclamation, as lead agency, affirms it has considered all the alternatives, information, analyses, and objections submitted by state, Tribal, and local governments, and public commenters, for consideration by the lead and cooperating agencies in developing the EIS.

Reclamation has held meetings with Chelan County to assess potential permitting requirements for the Project. These included the 30, 60, and 90 percent Design, Permitting, and ESA meetings, in addition to other meetings. Reclamation does not need a Shoreline permit or exemption from Chelan County, as the SWISP Project is on federal land or on federal easement, which is as much federal property as is a fee interest (not just binding on the owner of underlying lands).

Reclamation submitted the State Environmental Policy Act (SEPA) Checklist to Chelan County on December 15, 2020. On April 17, 2021, Chelan County issued a *Determination of Significance and Adoption Notice for Environmental Impact Statement* (SEPA Determination and Adoption Notice) for the SWISP Project pursuant to Washington Administrative Code (WAC 197-11-360 Determination of significance (DS)/initiation of scoping; WAC 197-11-630 Adoption – Procedures; WAC 197-11-965 Adoption notice). Chelan County's SEPA review process was finalized after a 7-day public review period ending on April 24, 2021. The SEPA Determination and Adoption Notice will be submitted to WDFW as part of the JARPA. Reclamation will submit the JARPA to WDFW after this ROD is signed. WDFW will then use the JARPA and Chelan County's SEPA Determination and Adoption Notice to issue or deny a Hydraulic Project Approval within 45 days.

Environmental Commitments and Mitigation Measures

Per 40 CFR 1505.2, Reclamation, as lead agency, affirms it has adopted all practicable means to avoid or minimize environmental harm from the alternative selected (Alternative C). Environmental commitments represent mitigation measures and BMPs to avoid, minimize, rectify, reduce, eliminate, or compensate for impacts caused by implementation of the SWISP Project. Most of the Project's impacts are short term and generally will occur during the construction period. Project design and implementation of site-specific or selectively required BMPs will minimize the effect of the Project where the potential for long-term adverse impacts could occur without them. The Project specifications outline the requirements the contractor must follow to reduce environmental impacts. These requirements become environmental commitments. **Attachment A** includes Project specification requirements and BMPs that form Reclamation's environmental commitments, which are incorporated into the proposed action. **Section A.4 in Attachment A** includes reasonable and prudent measures and terms and conditions from the USFWS Biological Opinion. The proposed action covered in the Biological Opinion includes construction of the SWISP Project only. It does not include associated O&M, such as sediment management or management of the proposed fish screens during icing conditions. O&M activities will be covered in a separate ESA Section 7 consultation²⁸. Chapter 3 of the Final EIS presents the impact analysis for resources after applying impact minimization measures, such as BMPs, since these would be required during construction; therefore, they are considered part of the action alternatives.

Comments Submitted on the Final EIS

A Notice of Availability of the Final EIS was published by the EPA in the *Federal Register* on March 26, 2021, initiating a 30-day review period ending April 26, 2021. The Final EIS was posted on the SWISP Project website and a press release was issued by Reclamation. Notices of the availability of the Final EIS were sent to all entities and individuals on the email distribution list.

Reclamation received three comment submissions on the Final EIS from the Colville Tribes, the EPA, and a group of students from the University of Arizona. No other comments were received from individuals, organizations, Tribes, or agencies.

In accordance with Reclamation's NEPA Handbook²⁹, Reclamation provides the following responses to the comments received on the Final EIS; all comments were fully considered.

Reclamation received comments from the Colville Tribes stating that their interests and Tribal rights were not clearly recognized in the Final EIS. Reclamation would like to clarify that the Colville

²⁸ Email from C. Raekes, USFWS, to M. Cappellini, USFWS; J. Sutter, Reclamation; E. Heether, Reclamation; S. Hoefel, Reclamation; and S. Franks, USFWS, on October 7, 2020, Subject: Re: Follow up on our call this morning.

²⁹ Reclamation. 2012. Reclamation's NEPA Handbook. February 2012.

Tribes have special interests in the Wenatchee Basin and Icicle Creek dating back to time immemorial and specifically reserved fishing rights in the area. In the Final EIS, the Colville Tribes' fishing rights are disclosed in various sections (see Final EIS Sections 1.7, 3.8.2, 3.10.2, and 4.2.3).

In addition, the Colville Tribes requested clarification regarding the definition of a cooperating agency and how it compares to that of a participating agency. In 40 CFR § 1508.1(e), a cooperating agency is defined as any federal agency (and a state, Tribal, or local agency **with agreement of the lead agency** [emphasis added]) other than a lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action that may significantly affect the quality of the human environment. In 40 CFR § 1508.1(w), a participating agency means a federal, state, Tribal, or local agency participating in an environmental review or authorization of an action. From the inception of the SWISP Project, the Colville Tribes actively contributed during the design and planning phases. Although the Colville Tribes did not accept Reclamation's invitation to be a cooperating agency on the SWISP EIS, they were recognized as a participating agency (see Final EIS Sections 1.5 and 4.2.1) and assisted with preparation and review of the EIS, including alternative development; alternatives screening; Tribal coordination, communication, and consultation; scoping; Draft EIS; and Final EIS of the SWISP Project (see Final EIS Sections 2.2, 2.3, 4.2.3, 4.3.1, 4.3.2, 4.3.3, and 4.4).

The Colville Tribes also raised concerns about a lack of specificity regarding a Tribal Interest BMP. The Tribal Interest BMP of concern states that vehicular access across the bridge to and from the spillway pool shall be maintained at all times (see Final EIS Appendix B). The Colville Tribes expressed concerns that the BMP did not explicitly state that access to the Tribal fishery would not be impacted by the SWISP Project. Because the BMP will safeguard access across the bridge to the spillway pool, access to the Tribal fishery will be ensured. Reclamation specifically discussed impacts of the alternatives to Tribal fishery access, scaffolding repair, ceremonial and fishing activities, and implementation in Section 3.10.3. Under all alternatives, Reclamation stated unequivocally that "changes to access to the Wenatshapam Fishery are not anticipated during construction or subsequent O&M activities" and "no construction activities would impact access to the fishery." In addition, Reclamation maintained in the same section that the "construction contractor would coordinate with Reclamation, USFWS, and the Tribes regarding the location of the temporary Hatchery water supply pumps, pump screen boxes in the spillway pool, and temporary pipeline alignment prior to pumping to ensure access and implementation of the Tribal fishery would not be impeded" (see Final EIS Section 3.10.2 Alternative B, Tribal Fisheries and Culturally Important Plants and Wildlife, page 112).

Reclamation also received written comments from the EPA. The EPA stated their appreciation for Reclamation addressing their comments on the Draft EIS and for including the Public Comment and Response Report (Appendix E) in the Final EIS. However, EPA recommended that Reclamation address recently issued or revoked EOs and a memorandum to executive departments and agencies that may be relevant to the SWISP Project. The documents identified by EPA include EO 13990: *Protecting Public Health and the Environmental and Restoring Science To Tackle the Climate Crisis*³⁰;

³⁰ E.O. 13990 of January 20, 2021; 86 FR 7037.

EO 13985: *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*³¹, and *Memorandum on Tribal Consultation and Strengthening Nation-To-Nation Relationships*³².

EPA submitted several comments associated with greenhouse gas (GHG) emissions and climate change. EPA recommends that Reclamation evaluate GHG emissions and climate change as reasonably foreseeable effects which have a reasonably close causal relationship to the Preferred Alternative. Reclamation presented impacts to air quality and climate in Table 3-1 of the Final EIS. The Table 3-1 summary was derived from the Air Quality and Climate Resource Report³³ that Reclamation posted in November 2020, concurrent with the publication of the Draft EIS.

Reclamation used peer-reviewed climate models and data from several sources to provide geographic, biophysical, and social context regarding GHG emissions, including EPA tools such as the Facility Level Information on Greenhouse Gas Emissions (FLIGHT)³⁴ during its analysis. Climate-induced changes to Icicle Creek were characterized using peer-reviewed models that were initially developed for the Pacific Northwest under the University of Washington's Climate Impact Group (CIG) and specifically for Icicle Creek^{35,36}. The Final EIS utilized CIG models to highlight changes to Icicle Creek flow under high and low GHG scenarios projected out to years 2030, 2050, and 2080; the modeling is meant to highlight changes in timing and volume of runoff within Icicle Creek. None of the action alternatives is expected to have significant effects regarding emissions that would contribute to climate change. The Final EIS (Table 3-1) indicates that the action alternatives would result in temporary emissions of GHGs through the combustion of fuels and would release minor amounts of carbon from soils and vegetation during surface-disturbing activities; these emissions would contribute to global GHG levels but would be below 25,000 metric tons of carbon dioxide equivalents (CO₂e) per year. The estimated combustion emissions from the selected alternative (Alternative C) would be less than 1,461 metric tons of GHGs CO₂e for the entire SWISP Project (see Table 6 and Sections 4.4.1 and 4.4.2 in the Air Quality and Climate Resource Report), which is well below the 25,000 metric ton of CO₂e per year threshold that requires reporting under EPA's Greenhouse Gas Reporting Program (see Final EIS Table 2-5 and Appendix E, Public Comment and Response Report responses to EPA regarding GHGs). Lastly, BMPs that reduce combustion-related criteria pollutant emissions are provided in the Final EIS and this ROD and will also reduce GHG emissions.

Reclamation notes that the revised NEPA CEQ regulations³⁷, specifically 40 CFR 1508.1(g)(2), state that a "but for" causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should not be considered if they are remote in time, geographically

³¹ E.O. 13895 of January 20, 2021; 86 FR 7009.

³² Memorandum of January 26, 2021; 86 FR 7491.

³³ Reclamation 2020. Air Quality and Climate Resource Report. November 2020. Accessible at: <https://www.usbr.gov/pn/programs/leavenworth/swisp/pdf/airclimate.pdf>.

³⁴ EPA. 2020. FLIGHT. Greenhouse Gas Emissions from Large Facilities. Accessible at: <https://ghgdata.epa.gov/ghgp/main.do#>.

³⁵ CIG. 2017. Changing Streamflow in Icicle, Peshastin, and Mission Creeks. Accessible at: <https://fortress.wa.gov/ecy/publications/parts/1812016part7.pdf>.

³⁶ CIG. 2017. Changing Streamflow in Icicle, Peshastin, and Mission Creeks: An Interactive Tool. Accessible at: https://cig.uw.edu/resources/analysis-tools/icicle_work_group_projections/.

³⁷ CEQs Regulations for Implementing the Procedural Provisions of NEPA (40 CFR, Parts 1500-1508) as updated July 16, 2020.

remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action. Consistent with Secretarial Order 3399: *Department-Wide Approach to the Climate Crisis and Restoring Transparency and Integrity to the Decision-Making Process*³⁸ (Section 5), Reclamation queried the EPA FLIGHT tool for the analysis presented in the Air Quality and Climate Resource Report and the database showed no reporting facilities in Chelan County in 2017 or 2018. However, one facility in Chelan County was subject to reporting requirements before this time: an aluminum processing facility in Malaga, Washington that emitted 331,207 metric tons of CO₂e in 2015 and 898 metric tons of CO₂e in 2016. Therefore, Reclamation has determined no additional analysis is required.

EPA also requested that Reclamation calculate the social cost of GHG emissions consistent with Section 5 *Accounting for the Benefits of Reducing Climate Pollution* of EO 13990. Reclamation calculated the social cost of GHG emissions by multiplying GHGs CO₂e (metric tons) estimates for Alternatives B and D (Tables 6 and 7, respectively, in the Air Quality and Climate Resource Report) and the interim values for the range of discount rates and statistics of the social costs of CO₂ for emissions year 2020 given in Table 1 of the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide*³⁹. Reclamation estimated the monetized damages associated with incremental increases of GHG emissions for Alternative B to range from \$20,457 to \$222,108⁴⁰. Reclamation estimated the monetized damages associated with incremental increases of GHG emissions for Alternative D to range from \$26,498 to \$287,689⁴¹. GHG emissions from rehabilitating the LNFH surface water intake and delivery system under the selected alternative (Alternative C) would be similar to, but less than, Alternative B. Under Alternative C there would be fewer emissions from replacing or rehabilitating the conveyance pipeline, and the amount of soil and vegetation disturbed along the conveyance pipeline would also be reduced. Although this change would be small, it would result in less released carbon compared with Alternative B.

In addition, EPA recommended addressing recently revoked EOs. Reclamation acknowledged in the Final EIS that EO 13807 was previously mandated; for clarity, Reclamation has added an additional sentence in this ROD stating that EO 13807 was revoked by EO 13990.

EPA recommended identification and evaluation of historically undeserved communities who may potentially be disproportionately and/or adversely affected by the SWISP Project. Reclamation presented impacts to socioeconomic and environmental justice in Table 3-1 of the Final EIS. The Table 3-1 summary was derived from Section 3.8, Environmental Justice in the Final EIS and the

³⁸ Department of the Interior, Secretarial Order 3399 of April 16, 2021. Accessible at: https://www.doi.gov/sites/doi.gov/files/clips/documents/so-3399-508_0.pdf.

³⁹ Accessible at https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf?source=email.

⁴⁰ The \$20,457 estimate was calculated by multiplying \$14 (5% Average for 2020 emissions year) with 1,461.24 GHG CO₂e metric tons (Alternative B total) and the \$222,180 estimate was calculated by multiplying \$152 (3% 95th Percentile for 2020 emissions year 2020) with 1,461.24 GHG CO₂e metric tons (Alternative B total).

⁴¹ The \$26,498 estimate was calculated by multiplying \$14 (5% Average for 2020 emissions year) with 1,892.69 GHG CO₂e metric tons (Alternative D total) and the \$287,689 estimate was calculated by multiplying \$152 (3% 95th Percentile for 2020 emissions year 2020) with 1,892.69 GHG CO₂e metric tons (Alternative D total).

Socioeconomics and Environmental Justice Report⁴² that Reclamation posted in November 2020, concurrent with the publication of the Draft EIS. Chelan County and the City of Leavenworth do not meet the criteria for low-income and minority environmental justice populations. Potentially affected minority populations that were identified in the Final EIS include members of area Native American Tribes. Tribal affiliated groups with a connection to resources within the analysis area include members of the Yakama Nation and Colville Tribes. These groups represent populations of environmental justice concern. Reclamation attempted to ensure minority, low-income, and Tribal populations were provided with the opportunity to engage in meaningful involvement in the EIS public participation processes. Reclamation used an online virtual public meeting format and multiple video teleconference question and answer sessions during the public scoping and public comment periods of the SWISP EIS. The use of virtual and teleconference environments allowed for meaningful and varied participation and comment options and, in particular, presented opportunities to minority, low-income, and Tribal populations to participate in the process, and to allow their comments, questions, and concerns to be heard and addressed. Virtual participation allowed for material to be presented and archived in a manner that provided participation flexibility to minority, low-income, and Tribal populations and other members of the public. The use of teleconferences provided an alternative participation option for those without access to the internet or in-person meetings. Reclamation reported these activities to the Office of Environmental Policy and Compliance (OEPC) for 2020 under requirements specified in EO 12898: *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*⁴³. Once finalized, the report will be posted on the OEPC Environmental Justice website⁴⁴.

Lastly, EPA recommended that Reclamation address the requirements found in the Presidential Memorandum on *Tribal Consultation and Strengthening Nation-to-Nation Relationships* reaffirmed in EO 13175: *Consultation and Coordination with Indian Tribal Governments*⁴⁵. As previously mentioned, Reclamation engaged the Yakama Nation and the Colville Tribes through regular, meaningful, and robust consultation and coordination prior to the release of the ROD, and will continue to do so during all phases of SWISP Project construction and O&M. From the inception of the SWISP Project, the Tribes actively contributed during the design and planning phases. In addition, the Tribes assisted with preparation and review of the EIS including alternative development; alternatives screening; Tribal coordination, communication, and consultation; scoping; Draft EIS; and Final EIS of the SWISP Project (see Final EIS Sections 2.2, 2.3, 4.2.3, 4.3.1, 4.3.2, 4.3.3, and 4.4). In Sections 3.10 Tribal Interests and 4.2.3 Tribal Coordination, Communication, and Consultation in the Final EIS, Reclamation specifically addressed EPA comments concerning Tribal coordination and consultation under NHPA including Indian Sacred Sites, Indian Trust Assets, and Tribal Fisheries and Culturally Important Plants and Wildlife.

Another comment submission was prepared by students from the University of Arizona. The students provided their impressions on the organization, size, comprehensibility, and content of the

⁴² Reclamation. 2020. Socioeconomics and Environmental Justice Report. November 2020. Accessible at: <https://www.usbr.gov/pn/programs/leavenworth/swisp/pdf/socio.pdf>.

⁴³ E.O. 12898 of February 11, 1994; 59 FR 7629. Accessible at: <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>.

⁴⁴ Accessible at: <https://www.doi.gov/oepc/resources/environmental-justice>.

⁴⁵ E.O. 13175 of November 6, 2000; 65 FR 67249.

Final EIS. Reclamation identified several comments in this letter regarding the individuals' stated inability to determine the selected alternative, find responses to Draft EIS comments and subsequent revisions in the Final EIS, or discern a short summary of the federal action. In the Final EIS, Reclamation, as the lead federal agency, unambiguously identified Alternative C as the preferred alternative (see Final EIS Section 2.7 Federal Lead Agency Preferred Alternative). Reclamation also provided detailed responses to substantive Draft EIS comments, including the location in the document where subsequent changes or additions were made (see Final EIS Appendix E. Public Comment and Response Report). Finally, Reclamation included a concise and comprehensive synopsis at the beginning of the Final EIS (see Final EIS Executive Summary).

After careful consideration of the comments received on the Final EIS, Reclamation and the USFWS concluded that no additional information has been provided that would change their decisions.

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Attachment A. Environmental Commitments and Best Management Practices

A.1 Best Management Practices

To minimize impacts on resources from the Proposed Action, the Best Management Practices (BMPs) described in **Table A-1** would be implemented. BMPs are drawn from the following sources:

- Biological opinions for LNFH operations, issued by the USFWS (addressing threatened Bull Trout; USFWS 2011, USFWS 2021) and by the NMFS (addressing endangered spring Chinook Salmon and threatened Steelhead; NMFS 2015, NMFS 2017a).
- General Conservation Measures (GCMs) for ESA-listed salmonids in the programmatic biological opinion for USACE permitting of fish passage and restoration actions in Washington State (FPRPIII; NMFS 2017a).
- GCMs for Bull Trout and other ESA-listed salmonids in the programmatic biological opinion for the Washington State fish passage and habitat enhancement and restoration program (NMFS and USFWS 2008)⁴⁶.
- Measures described in the construction specifications, including measures associated with site layout, temporary access, staging and stockpile areas, equipment use, erosion control, dust abatement, timing of in-water work and worksite isolation, and spill prevention and control.

Reclamation would also obtain required regulatory permits and implement terms and conditions contained therein. If permit requirements, BMPs, or other measures contradict each other, the contract specification requires that the contractor abide by the most stringent of requirements. A list of general, applicable permit conditions is included in Section A.2.

⁴⁶ This combined agency programmatic biological opinion expired on December 31, 2013. The USACE and NMFS reinitiated consultation and NMFS has issued subsequent biological opinions for the nationwide permit program. However, the USACE has been operating under consultation extensions from USFWS, with the most recent extension expiring June 30, 2020. Reclamation anticipates that ESA Section 7 consultation with the USFWS for the SWISP Project will result in similar conservation measures as those contained in the expired programmatic biological opinion.

Table A-4. Best Management Practices

Resource Topic	Best Management Practice
General	<ul style="list-style-type: none"> • Heavy equipment use will be limited to that with the least adverse effects on the environment (e.g. minimally sized, low ground pressure equipment, use of matting, etc.; NMFS 2017a). • Conduct operations to prevent unnecessary destruction, scarring, or defacing of natural surroundings in the vicinity of the work.
Air Quality and Climate	<ul style="list-style-type: none"> • Dust control and abatement measures will be implemented during construction. • Vehicle traffic on unpaved surfaces would be limited to 10 miles per hour to minimize dust generation. • Vehicle traffic on government rights-of-way, dirt roads, and paved roads through LNFH property would be limited to 10 miles per hour. • Prevent, control, and abate dust pollution on government rights-of-way. • Provide labor, equipment, and materials, and use efficient methods wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities. • Provide means for eliminating atmospheric discharges of dust during mixing, handling, and storing of cement, pozzolan, and concrete aggregate. • Use reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants. • Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.
Geology and Soils	<ul style="list-style-type: none"> • The number of temporary access roads will be minimized, and roads will be designed to avoid adverse effects like creating excessive erosion (NMFS 2017a). • Temporary roads and trails across slopes greater than 30 percent will be avoided when feasible (NMFS 2017a). • Existing roadways or travel paths will be used whenever possible (NMFS 2017a).
Water Resources (Stream Conditions)	<ul style="list-style-type: none"> • Cofferdam placement will maintain natural stream flow, minus the 40 cfs diversion to the hatchery, within the greatest amount of natural streambed width as possible. • Additional flow outage shall require the prior written approval of the COR, and of appropriate federal and state water quality control agencies.

Resource Topic	Best Management Practice
Water Resources (Water Quality)	<p>General</p> <ul style="list-style-type: none"> • Perform construction activities by methods that will prevent entrance, or accidental spillage, of solid matter, contaminants, debris, or other pollutants or wastes into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. • Measures shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into waters of the U.S. (NMFS 2017a). • The use of acids for cleaning or preparing concrete surfaces for repair will not be permitted. <p>In-water work</p> <ul style="list-style-type: none"> • Prepare a Work Area Isolation Plan for all work below the bankfull elevation requiring flow diversion or isolation. Include the sequencing and schedule of dewatering and rewatering activities, plan view of all isolation elements, as well as a list of equipment and materials to adequately provide appropriate redundancy of all key plan functions (e.g., an operational, properly sized backup pump and/or generator) (NMFS 2017a). • Use of rapidly deployable prefabricated cofferdam systems would minimize impacts to subgrade and surrounding water. • If supersacks are used for the temporary cofferdams or gravity bypass pipeline supports, the fill material must be clean, round river rock ("stream mix"). • When conducting in-water or bank work, machine hydraulic lines will be filled with vegetable oil for the duration of the Project to minimize impacts of potential spills and leaks. • Spill prevention and clean-up kits will be on site when heavy equipment is operating within 25 feet of the water (NMFS 2017a). • To the extent feasible, work requiring use of heavy equipment will be completed by working from the top of the bank (i.e. landward of the OHWM or extreme high tide line) (NMFS 2017a). • Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities around the water (NMFS 2017a). • Equipment will cross the stream in-water only under the following conditions: (NMFS 2017a). <ul style="list-style-type: none"> ○ A. Equipment is free of external petroleum-based products, soil and debris has been removed from the drive mechanisms and undercarriage; and ○ B. The substrate is bedrock or coarse rock and gravel; or ○ C. Mats or logs are used in soft bottom situations to minimize compaction while driving across streams; and

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	<ul style="list-style-type: none"> ○ D. Stream crossings will be performed at right angles (90 degrees) to the bank if possible; and ○ E. No stream crossings will be performed at spawning sites when spawners of ESA listed fishes are present or eggs or juvenile fish could be in the gravel; and ○ F. The number of crossings will be minimized. • Project operations will cease under high flow conditions that could inundate the Project Area, except as necessary to avoid or minimize resource damage (NMFS 2017a). • If high flow or high tide conditions that may cause siltation are encountered during the Project, work shall stop until the flow subsides or the tide falls (NMFS 2017a). • Where practicable, a turbidity and/or debris containment device shall be installed prior to commencing in-water work (NMFS 2017a). • When working in-water, some turbidity monitoring may be required, subject to the USACE permit requirements or CWA section 401 certification. Turbidity monitoring generally is required when working in streams with more than 40 percent fines (silt/clay) in the substrate. Turbidity will be monitored only when turbidity generating work takes place, for example, installation of coffer dams, pulling the culvert in-water, reintroducing water. The applicant will measure the duration and extent of the turbidity plume (visible turbidity above background) generated. The data will be submitted to the USACE, NMFS, and the USFWS immediately following Project construction. Turbidity measurements will be taken in NTUs and are used by project proponents to develop procedures to minimize turbidity and estimate take for future projects (NMFS 2017a). • Equipment used in the instream channel will have containment methods to address possible fuel and oil leaks. <p>Erosion and spill prevention and control</p> <ul style="list-style-type: none"> • A Temporary Erosion and Sediment Control plan and a Spill Prevention Control and Containment plan, commensurate with the size of the Project, must be prepared and carried out to prevent pollution caused by surveying or construction operations (NMFS 2017a). • A Spill Prevention, Control, and Clean-Up plan will be prepared prior to construction for every project that utilizes motorized equipment or vehicles (NMFS 2017a). • A Spill Prevention, Control, and Countermeasure (SPCC) Plan in accordance with 40 CFR, Part 112 is required where release of oil and oil products could reasonably be expected to enter into or upon navigable waters of the United States or adjoining shorelines in quantities that may be harmful (40 CFR, Part 110), and aggregate on site oil storage capacity is over 1,320 gallons. Only containers with capacity of 55 gallons and greater are included in determining on site aggregate storage capacity.

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	<p>Erosion and spill prevention and control, continued</p> <ul style="list-style-type: none"> ○ Prevent, stop, and control spills or leaks during construction activities: ○ Stop source of spill or leak. ○ Stop migration of spill or leak. ○ Place berm of sorbent material around perimeter of spill. ○ Solidify free standing oil. • A supply of emergency erosion control materials will be on hand and temporary erosion controls will be installed and maintained in place until site restoration is complete (NMFS 2017a). • Landward erosion control methods shall be used to prevent silt-laden water from entering waters of the U.S. These may include, but are not limited to, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas (NMFS 2017a). • Control pollutants by use of sediment and erosion controls, wastewater and stormwater management controls, construction site management practices, and other controls including State and local control requirements. • Sediment and Erosion Controls: <ul style="list-style-type: none"> ○ Establish methods for controlling sediment and erosion which address vegetative practices, structural control, silt fences, straw dikes, sediment controls, and operator controls as appropriate. ○ Institute stormwater management measures as required, including velocity dissipators, and solid waste controls which address controls for building materials and offsite tracking of sediment. • Pollution Prevention Measures: <ul style="list-style-type: none"> ○ Use methods of dewatering, unwatering, excavating, or stockpiling earth and rock materials which include prevention measures to control silting and erosion, and which will intercept and settle any runoff of sediment-laden waters. ○ Prevent wastewater from general construction activities such as drainwater collection, aggregate processing, concrete batching, drilling, grouting, or other construction operations, from entering flowing or dry watercourses without the use of approved turbidity control methods. ○ Divert stormwater runoff from upslope areas away from disturbed areas.

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	<p data-bbox="499 251 1146 279">Erosion and spill prevention and control, continued</p> <ul data-bbox="548 289 1898 776" style="list-style-type: none"> <li data-bbox="548 289 1898 565">• Turbidity Prevention Measures: <ul data-bbox="596 326 1898 565" style="list-style-type: none"> <li data-bbox="596 326 1898 423">○ Use methods for prevention of excess turbidity which include, but are not restricted to, intercepting ditches, settling ponds, gravel filter entrapment dikes, flocculating processes, recirculation, combinations thereof, or other approved methods that are not harmful to aquatic life. <li data-bbox="596 428 1898 493">○ Wastewaters discharged into surface waters shall meet conditions of Clean Water Act section 402, the National Pollutant Discharge Elimination System (NPDES) permit. <li data-bbox="596 498 1898 565">○ Do not operate mechanized equipment in waterbodies without having first obtained a Clean Water Act section 404 permit, and then only as necessary to construct crossings or perform the required construction. <li data-bbox="548 570 1898 602">• Clean up spills or leaks in a manner that complies with applicable Federal, State, and local laws and regulations. <li data-bbox="548 607 1898 776">• Dispose of spilled or leaked materials: <ul data-bbox="596 644 1898 776" style="list-style-type: none"> <li data-bbox="596 644 1898 709">○ Handle and dispose of spilled or leaked materials contaminated with 50 ppm or greater polychlorinated biphenyls. <li data-bbox="596 714 1898 776">○ Handle and dispose of spilled or leaked materials not contaminated or contaminated with less than 50 ppm polychlorinated biphenyls in accordance with applicable Federal, State, and local regulations. <p data-bbox="499 797 852 824">Discharge water and wastes</p> <ul data-bbox="548 834 1898 1247" style="list-style-type: none"> <li data-bbox="548 834 1898 971">• All discharge water created by construction (e.g. concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) will be treated to avoid negative water quality and quantity impacts. Removal of fines may be accomplished with bioswales; concrete washout water with an altered pH, may be infiltrated (NMFS 2017a). <li data-bbox="548 976 1898 1073">• Wastewater from Project activities and water removed from within the work area shall be routed to an upland disposal site (landward of the OHWM or extreme high tide line) to allow removal of fine sediment and other contaminants prior to being discharged to the waters of the U.S. (NMFS 2017a). <li data-bbox="548 1078 1898 1175">• All waste material such as construction debris, silt, excess dirt or overburden resulting from the Project will generally be deposited above the limits of flood water in an upland disposal site. However, material from pushup dikes may be used to restore microtopography (e.g., filling drainage channels) (NMFS 2017a). <li data-bbox="548 1180 1898 1247">• The contractor's Stormwater Pollution Prevention Plan will address potential pollution generating activities that may be reasonably expected to impact the quality of stormwater discharges from the construction site.

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	<p data-bbox="499 251 758 279">Storage and staging</p> <ul data-bbox="548 289 1892 1230" style="list-style-type: none"> • The contractor will store and protect manufactured products in accordance with manufacturer's instructions and the Reclamation Safety and Health Standards (available at: https://www.usbr.gov/safety/rshs/index.html). • The contractor is required to obtain instructions from the manufacturer before delivery of materials to the jobsite and maintain a copy of the instructions at the jobsite; these instructions may include but not be limited to protect materials subject to adverse effects from moisture, sunlight, ultraviolet light, or weather during storage at jobsite. • When not in use, vehicles and equipment containing oil, fuel, and/or chemicals will be stored in a staging area located at least 150 feet from the USACE jurisdictional boundary of wetlands and waterbodies. If possible, staging will be located at least 300 feet away from the USACE jurisdictional boundary of wetlands and waterbodies, and on impervious surfaces to prevent spills from reaching ground water. When moving equipment daily at least 150 feet from waterbodies would create unacceptable levels of disturbance (for example, requiring multiple stream crossings, multiple passes over sensitive vegetation), a closer staging location with an adequate spill prevention plan may be proposed and approved as described in Minor Project Modifications (NMFS 2017a). • Equipment will not be stored overnight in the instream channel. • Do not stockpile or deposit excavated materials or other construction materials, near or on, stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can in any way encroach upon the watercourse. • Petroleum Product Storage Tanks Management. <ul style="list-style-type: none"> ○ Place oil or other petroleum product storage tanks at least 20 feet from streams, flowing or dry watercourses, lakes, wetlands, reservoirs, and any other water source. ○ Do not use underground storage tanks. ○ Construct storage area dikes at least 12 inches high or graded and sloped to permit safe containment of leaks and spills equal to storage tank capacity located in the area plus sufficient freeboard to contain the 25-year rainstorm. Line diked areas with an impermeable barrier at least 50 mils thick. ○ Areas for refueling operations: Lined with impermeable barrier at least 40 mils thick covered with 2 to 4 inches of soil. <p data-bbox="499 1256 989 1284">Reclamation of temporary disturbance</p> <ul data-bbox="548 1294 1871 1354" style="list-style-type: none"> • All temporary access will be removed (including gravel surfaces) and planted after Project completion (NMFS 2017a).

Resource Topic	Best Management Practice
Water Resources (Water Quality, continued)	<ul style="list-style-type: none"> • Within 7 calendar days from Project completion, any disturbed bank and riparian areas shall be protected using native vegetation or other erosion control measures as appropriate. For erosion control, sterile grasses may be used in lieu of native seed mixes. Alternative methods (e.g. spreading timber harvest slash) may be used for erosion control if approved by the USACE (NMFS 2017a).
Water Resources (Water Rights)	<ul style="list-style-type: none"> • A total of 40 cfs shall be continuously provided to the LNFH during Phase I construction. • A total of 20 cfs shall be continuously provided to the LNFH during Phase II construction activities taking place from April 17 to May 13, with provisions of emergency extension to May 20.
Biological Resources (Vegetation)	<ul style="list-style-type: none"> • Preserve natural landscape and preserve and protect existing vegetation not required or otherwise authorized to be removed. • Protect vegetation from damage or injury caused by construction operations, personnel, or equipment using protective barriers or other approved methods. • Minimize, to the greatest extent practicable, clearings and cuts through vegetation. • Do not use trees for anchorages except in emergency cases or as approved by Reclamation. Where approved, wrap the trunk with a sufficient thickness of approved protective material before rope, cable, or wire is placed. • Use safety ropes where tree climbing is necessary; do not use climbing spurs. • Before bringing construction equipment on site, clean it to remove dirt, vegetation, and other organic material to prevent introduction of noxious weeds, and invasive plant and animal species. • Contractor cleaning procedures shall result in equipment being cleaned as well or better than the procedures described in Reclamation Cleaning Manual (Reclamation 2010). Reclamation will inspect construction equipment following procedures described in Reclamation Cleaning Manual before allowing the equipment onsite. • Restore contractor use areas to pre-construction condition. • Areas of temporary disturbance must be re-seeded according to a revegetation plan.

Resource Topic	Best Management Practice
Biological Resources (Fisheries and Aquatic Ecosystems)	Riparian areas <ul style="list-style-type: none">• The removal of riparian vegetation for access will be minimized (NMFS 2017a).• All native, non-invasive organic material (large and small wood) cleared from the action area for access will remain on site (NMFS 2017a).• Boundaries of clearing limits associated with site access and construction will be marked to avoid or minimize disturbance of riparian vegetation, wetlands, and other sensitive sites (NMFS 2017a).• If native riparian vegetation is disturbed it will be replanted with native herbaceous and/or woody vegetation after Project completion. Planting will be completed between October 1 and April 15 of the year following construction. Plantings will be maintained as necessary for 3 years to ensure 50 percent herbaceous and/or 70 percent woody cover in year 3, whatever is applicable. For riparian impact areas greater than 0.5 of an acre, a final monitoring report will be submitted to the USACE in year 3. Failure to achieve the 50 percent herbaceous and 70 percent woody cover in year 3 will require the permittee to submit a plan with contingency measures to achieve standards or reasons to modify standards (NMFS 2017a).• Per NWP 27, post-planting monitoring may be required for up to 10 years to ensure an 80 percent planting survival rate is met.• Fencing will be installed as necessary to prevent access to revegetated sites by livestock, beavers, or unauthorized persons. Beaver fencing will be installed around individual plants where necessary (NMFS 2017a).

Resource Topic	Best Management Practice
Biological Resources (Fisheries and Aquatic Ecosystems, continued)	<p>Fisheries and aquatic wildlife</p> <ul style="list-style-type: none"> • Instream work is limited to July 1 through November 15. July 1 to August 15 is the approved in-water work window for Icicle Creek (USACE 2018). Extending the in-water work window to November 15 would be an exception to the general and approved in-water work window. • A minimum depth of 0.8 ft shall be maintained within the greatest amount of the natural stream channel width at all times with placement of cofferdams to facilitate fish passage. Fish passage criteria in Icicle Creek Fish Passage Evaluation for the Leavenworth National Fish Hatchery (Anglin et al. 2013, p. 26-28) should be consulted for minimum depth and maximum velocity criteria. The maximum velocity criteria on pages 26-28 are conservative, but attempts should be made to provide fish passage to the greatest extent practical across the natural stream channel width and hydrograph. • Work site dewatering will follow the Dewatering and Fish Capture Protocol (Appendix D of NMFS and USFWS 2008). Fish removal from dewatered work sites would be overseen by a fisheries biologist. Electrofishing for fish relocation/work area isolation must follow the most recent NMFS guidelines (NMFS 2017a). Record all incidents of listed fish being observed, captured, handled, and released (USFWS 2011). • Re-watering of the construction site occurs at such a rate as to minimize loss of surface water downstream as the construction site streambed absorbs water (NMFS and USFWS 2008). • The design of passage structures will follow the appropriate design standards in the most current version of the NMFS Anadromous Salmonid Fish Facility Design manual (NMFS and USFWS 2008). • Roughened channels will be designed to standards contained in the most current version of the NMFS Anadromous Salmonid Fish Facility Design manual (NMFS and USFWS 2008). • Post-construction monitoring of the low-flow fishway would be done to ensure effectiveness. • Boulder weirs will be low in relation to channel dimensions so that they are completely overtopped during channel-forming, bankfull flow events. Boulder weirs will be placed diagonally across the channel or in more traditional upstream pointing "V" or "U" configurations with the apex oriented upstream (NMFS and USFWS 2008). • Boulder weirs will be constructed to allow upstream and downstream passage of all native listed fish species and life stages that occur in the stream at all flows (NMFS and USFWS 2008). • Boulder weirs shall be designed and inspected by a multidisciplinary team (including a salmon or trout biologist) that has experience with these types of structures (NMFS and USFWS 2008).

Resource Topic	Best Management Practice
Biological Resources (Fisheries and Aquatic Ecosystems, continued)	<ul style="list-style-type: none"> • Screens, including screens installed in temporary pump intakes, will be designed to meet standards in the most current version of the NMFS Anadromous Salmonid Passage Facility Design manual (NMFS and USFWS 2008). • Pumps used to dewater the work isolation area or supply temporary hatchery water during construction, will have a fish screen installed, operated and maintained according to NMFS' fish screen criteria (NMFS 2017a). • All fish screens will be sized to match the water users documented or estimated historic water use or legal water right, whichever is less. Water diversion rates shall not exceed the design capacity of the screen, as calculated by following NMFS Anadromous Salmonid Passage Facility Design manual (NMFS and USFWS 2008). • Irrigation diversion intake and return points will be designed (to the greatest degree possible) to prevent all native fish life stages from swimming or being entrained into the irrigation system (NMFS and USFWS 2008). • Do not use jackhammers in excess of 30 pounds without Reclamation approval. Blasting is not permitted. • Monitor, capture, and release listed fish species in the sand settling basin in accordance with applicable protocol in NMFS (2017a), USFWS (2011), and as identified through consultation for the Project's Biological Assessment. • Schedule annual intake maintenance to avoid the Bull Trout upstream migration period (USFWS 2011). • Disturbing natural-origin spawning salmon and Steelhead during hatchery maintenance activities of diversions and instream structures shall be avoided, as shall disturbing salmon and Steelhead redds (NMFS 2017b). • Provide complete technical information and material data sheets on all CIPP lining materials, components, resins, catalysts, and all other components used in the work. <ul style="list-style-type: none"> ○ Include written confirmation that all products used in the work are "fish friendly," and do not contain chemicals known to be hazardous to fish or aquatic life. • Provide a written statement from the CIPP lining manufacturer that all materials, the fabrication process, and all other supplied equipment used in the work is compatible with these Specifications, and minimally meets the referenced standards listed above; including the level and extents of any QA/QC program required for this work. <ul style="list-style-type: none"> ○ This statement shall clearly state that all materials provided are known to be "fish friendly," and are not known to have detrimental effects to any fish species or other aquatic life.

Resource Topic	Best Management Practice
Biological Resources (Fisheries and Aquatic Ecosystems, continued)	<ul style="list-style-type: none"> Contractor shall provide a written statement from the CIPP lining installer that all materials, methods, and equipment used in the installation and testing process of the work is compatible with these Specifications, and minimally meets the referenced standards listed above; including the level and extents of any QA/QC program required for this work. <ul style="list-style-type: none"> This statement shall and clearly state that all materials, equipment, and methods provided or used are known to be "fish friendly" and are not known to have detrimental effects to aquatic animals. Include a statement that any water used for the installation, curing, and testing of the CIPP lining shall not be provided from Icicle Creek, nor shall it be returned to Icicle Creek, discharged on Project lands, or released into the Leavenworth National Fish Hatchery. Include details on the source, transportation, handling, removal, and discharge of this water.
Biological Resources (Terrestrial Wildlife)	<ul style="list-style-type: none"> Schedule all necessary vegetation removal, trimming, and grading of vegetated areas outside of the bird breeding season (generally March 1 to August 31) to the maximum extent practicable. Avoid construction activities during the bird breeding season to the extent practicable. When Project activities cannot occur outside the bird nesting season (March 1 to August 31), conduct surveys prior to scheduled activity to determine if active nests are present within the Wildlife Analysis Area and buffer any active nesting locations found during surveys. Surveys should be conducted by a qualified biologist no more than seven days prior to disturbance activities. If active nests are detected during these surveys a no-activity buffer zone around the nest will be established by a qualified biologist based on species, Project disturbance level, topography, existing disturbance levels, and habitat type until fledging has occurred. During ongoing Project activities, if a bird establishes a new nest the nest vegetation will not be removed or modified but no buffer zone will be required. If there is a pause in Project activities greater than seven days, an additional nesting bird survey would be needed. Reclamation would minimize the highest construction noise disturbance to avoid or minimize impacts on mule deer and mountain goat during sensitive periods to the extent practicable. This is between mid-spring to early fall (May 1-September 30).
Cultural Resources	<ul style="list-style-type: none"> As required by the Washington State Historic Preservation Officer, the <i>Plan and Procedures for the Inadvertent Discovery of Cultural Resources and Human Remains</i> (Inadvertent Discovery Plan) will be followed in the case of inadvertent discovery of cultural resources or human remains during construction. A professional archaeological monitor will be present during Phase II pipeline replacement activities on USFWS property.
Land Use	<ul style="list-style-type: none"> Restore contractor use areas to pre-construction condition.

Transportation

- Perform work on rights-of-way established by the government as necessary to construct and maintain any roads, bridges, or drainage structures required for establishment and use of haul routes for construction operations.
 - Use existing available public highways, roads, or bridges as haul routes subject to applicable local regulations.
 - Minimize interference with or congestion of local traffic.
 - Provide barricades, flaggers, and other necessary precautions for safety of the public where haul routes cross public highways or roads.
 - Maintain roadways, parking areas, and haul routes in a sound, smooth condition.
 - Promptly repair ruts, broken pavement, potholes, low areas with standing water, and other deficiencies to maintain road surfacing and drainage in original or specified condition.
 - Meet requirements of the Manual on Uniform Traffic Control Devices for Streets and Highways, Part 6 (Temporary traffic control; <https://mutcd.fhwa.dot.gov/>) and WAC 296-155-305 (Signaling and flaggers).
 - Provide cones, delineators, concrete safety barriers, barricades, flasher lights, danger signals, signs, temporary fencing, and other temporary traffic control devices as required to protect work, public safety, pedestrians, and other recreationists on public and private property.
 - Includes access to and within Contractor Use Areas.
 - Provide flaggers and guards as required to prevent accidents and damage or injury to passing traffic and pedestrians.
 - Do not begin work along public or private roads until traffic control devices for warning, channeling, and protecting motorists are in place in accordance with approved traffic control plan.
 - Provide unobstructed, smooth, and dustless passageway for one lane of traffic through construction operations except at times when vehicles will be turning around at the USFS kiosk or backing onto the Intake Access Road.
 - Provide unobstructed, smooth, and dustless passageway for one lane of traffic through construction operations.
 - Maintain convenient access to driveways and buildings along line of work.
 - Protect roads closed to traffic with effective barricades and warning signs. Illuminate barricades and obstructions from sunset to sunrise.
 - Remove traffic control devices when no longer needed.
 - Maintain vehicle and pedestrian traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic.
 - Vehicular access across the bridge to and from the spillway pool shall be maintained at all times.
 - The contractor will secure the required road use approval from the Forest Service, most likely under a road use permit.
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Resource Topic	Best Management Practice
Noise	<ul style="list-style-type: none"> • Daytime construction hours are 7:00 a.m. to 7:00 p.m. for both Phase I and Phase II. • Nighttime construction hours are 7:00 p.m. to 7:00 a.m. for Phase I only. • Contractor will develop and submit a Noise Reduction Plan for Phase I. <ul style="list-style-type: none"> ○ Noise reduction measures are required for both daytime and nighttime work. Nighttime work shall have more restrictions and noise reduction measures than daytime work as per the approved Noise Reduction Plan. ○ Continuous monitoring of noise (day and night) in at least two locations to be determined by the Government. ○ Government will determine the baseline noise levels based on daytime measurements during construction. ○ The hours of 7:00 p.m. to 7:00 a.m. are considered reduced noise hours. Nighttime noise levels, as measured at nearest noise-sensitive areas, should be reduced by 10 dB over the daytime measurement at the same location. ○ The contractor's methods and equipment shall include means and methods to reduce noise levels of the contractor's operation to the extent feasible. Only work acceptable to Reclamation's COR will be allowed during these hours. Maximum allowable noise level for identified locations adjacent to the work areas shall be established and enforced. ○ Only construction activities in the approved Noise Reduction Plan are allowed during nighttime hours, unless approved 72 hours in advance by Reclamation. • Do not use jackhammers in excess of 30 pounds without Reclamation approval. • Blasting is not permitted. • Pile driving is not permitted.
Recreation	<ul style="list-style-type: none"> • There are no construction activities (such as parking, storage, or vehicle turnaround) allowed in the Forest Service Snow Lakes Trailhead parking lot. • Vehicular access across the bridge to and from the spillway pool shall be maintained at all times. • Light Controls <ul style="list-style-type: none"> ○ Direct stationary floodlights shall shine downward at an angle less than horizontal. ○ Shield floodlights so that floodlights will not be a nuisance to surrounding areas. ○ Direct lighting so that residences are not in direct beam of light. ○ Direct lighting so that adjacent roadways are not in direct beam of light. ○ Correct lighting control problems when they occur as approved by Reclamation's COR.

Resource Topic	Best Management Practice
Visual Resources	<ul style="list-style-type: none"> Minimize, to the greatest extent practicable, clearings and cuts through vegetation. Irregularly shape authorized clearings and cuts to soften undesirable aesthetic impacts.
Socioeconomics and Environmental Justice	<ul style="list-style-type: none"> Reclamation policy is to avoid impacts on Indian sacred sites whenever possible. Continued coordination with affected Tribes may result in future identification of sacred sites. If this occurs, Reclamation will further evaluate impacts on these resources. Consultation with the Yakama Nation and Colville Tribes would identify how to protect sacred sites if they were identified and how to provide continued access if any such sites were affected by Project construction. In-water work would not occur in the spillway pool during the Tribal fishing preparations or season.
Utilities	<ul style="list-style-type: none"> A locate for underground utilities would be coordinated with the Washington Utility Notification Center (http://www.callbeforeyoudig.org/washington/index.asp) prior to construction.
Hazardous Materials and Public Health and Safety	<ul style="list-style-type: none"> Vehicle traffic on government rights-of-way, dirt roads, and paved roads through LNFH property would be limited to 10 miles per hour. Nuisance flows from seepage and leakage through the cofferdams will be managed to maintain a safe working environment. Hazardous Waste Disposal: <ul style="list-style-type: none"> Dispose by removal from jobsite. Recycle hazardous waste whenever possible. Dispose of hazardous waste materials that are not recycled at appropriately permitted treatment or disposal facilities. Transport hazardous waste in accordance with 49 CFR 171-179. Any accidental release of hazardous materials would be cleaned up according to the Contractor's SPCC Plan. Provide protection for personnel and existing facilities from harm due to demolition activities. Arrange protective installations to permit operation of existing equipment and facilities by the government while work is in progress. Inadvertent discovery of hazardous wastes or materials will be reported to Reclamation and Ecology within 24 hours of discovery. Construction in the vicinity of the discovery would cease until the appropriate disposal procedures were identified and carried out in coordination with Reclamation and Ecology. Provide cones, delineators, concrete safety barriers, barricades, flasher lights, danger signals, signs, temporary fencing, and other temporary traffic control devices as required to protect work, public safety, pedestrians, and other recreationists on public and private property. <ul style="list-style-type: none"> Includes access to and within Contractor Use Areas.

Resource Topic	Best Management Practice
Hazardous Materials and Public Health and Safety (continued)	<ul style="list-style-type: none"> • Provide flaggers and guards as required to prevent accidents and damage or injury to passing traffic and pedestrians. • Maintain vehicle and pedestrian traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic. • A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard will be developed by the contractor as part of the Fire Protection and Prevention Plan. • Contractor will develop a means to educate all construction workers about the risk of starting a wildfire and how to avoid it and who to contact in case a wildfire is started. • Create a fire break around and adjacent to offices, shops, and other work areas by clearing away all flammable vegetation or combustible growth. • Passenger vehicles and construction machinery requirements. <ul style="list-style-type: none"> ○ Passenger vehicles, cars, pickups, light trucks, shall be equipped with one water fire extinguisher or backpack pump 5-pound minimum capacity, excluding personal vehicles parked at Field Office area. ○ Any internal combustion engine operated on or near forest, brush, grass covered land shall be equipped with a spark arrester or the engine shall be constructed, equipped, and maintained for prevention of fire. • Fire tools required in areas where portable tools powered by internal combustion engines are used within 25 feet of any flammable material. <ul style="list-style-type: none"> ○ Maintain one serviceable round point shovel, minimum overall length 46 inches, and one 5-pound minimum pressurized fire extinguisher or 5-pound back pump. ○ Keep required fire tools within 25 feet of operating equipment powered by internal combustion engine. • Fire tools and preventative actions required at shops, staging areas, and other stationary work areas where equipment machinery or tools that can cause sparks are used: <ul style="list-style-type: none"> ○ Clear away flammable materials for 25 feet. ○ Maintain one serviceable round point shovel overall length not less than 46 inches. Maintain a 5-gallon minimum backpack pump water-type fire extinguisher or one 5-gallon minimum pressurized water fire extinguisher. • Provide water truck equipped with 500 feet of 1.5-inch single jacket hose, nozzle, and pressure pump. Truck with 300-gallon (minimum) water must be on site at each work feature where work is being performed with trained operator during work hours. Water truck may be used for other watering work, such as dust suppression, but must be immediately available for fire suppression duty.

Resource Topic	Best Management Practice
	<ul style="list-style-type: none"> • Light Controls <ul style="list-style-type: none"> ○ Direct stationary floodlights shall shine downward at an angle less than horizontal. ○ Shield floodlights so that floodlights will not be a nuisance to surrounding areas. ○ Direct lighting so that residences are not in direct beam of light. ○ Direct lighting so that adjacent roadways are not in direct beam of light. ○ Correct lighting control problems when they occur as approved by Reclamation's COR. • Lead abatement will be conducted by trained and certified individuals in lead-abatement processes. • Regulations included in CFR 1926.62 for lead removal and 40 CFR 402/404 for the safe removal of lead-based paints shall be followed to limit lead exposure and ensure the health of construction workers. • Vehicular access across the bridge to and from the spillway pool shall be maintained at all times.
Tribal Interests	<ul style="list-style-type: none"> • Reclamation policy is to avoid impacts on Indian sacred sites whenever possible. Continued coordination with affected Tribes may result in future identification of sacred sites. If this occurs, Reclamation will further evaluate impacts on these resources. Consultation with the Yakama Nation and the Colville Tribes would identify how to protect sacred sites if they were identified and how to provide continued access if any such sites were affected by Project construction. • Vehicular access across the bridge to and from the spillway pool shall be maintained at all times. • The construction contractor would be required to submit a pumping plan. To reduce potential impacts to Tribal fisheries, location of the temporary Hatchery water supply pumps and pump screen boxes in the spillway pool and temporary pipeline route shall be coordinated with Reclamation, USFWS, and the Tribes, as part of the contractor submittal review process.

Sources: As noted in table.

A.2 Regulatory Permit Terms and Conditions

Reclamation will obtain required regulatory permits and comply with the general, regional, and permit-specific terms and conditions contained therein. A general list of terms and conditions is included below. Regulating agencies may also impose additional conditions on a project-by-project basis.

A.2.1 U.S. Army Corps of Engineers Section 404 Nationwide Permits

USACE General Conditions for all NWP

- **Aquatic Life Movements.** All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
- **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable.
- **Suitable Material.** Material used for construction or discharged must be free from toxic pollutants in toxic amounts.
- **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
- **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.
- **Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.
- **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.
- **Tribal Rights.** No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.
- **Endangered Species. (a)** No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal ESA, or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed.
- **Endangered Species. (d)** As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

- Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.
- Historic Properties. (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act have been satisfied.
- Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed.
- Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)).
- Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the USACE or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification.

USACE Seattle District NWP Regional Conditions

- Construction Boundaries: Permittees must clearly mark all construction area boundaries before beginning work on projects that involve grading or placement of fill. Boundary markers and/or construction fencing must be maintained and clearly visible for the duration of construction. Permittees should avoid and minimize removal of native vegetation (including submerged aquatic vegetation) to the maximum extent possible.
- Temporary Impacts and Site Restoration: Native soils removed from waters of the U.S. for project construction should be stockpiled and used for site restoration. Restoration of temporarily disturbed areas must include returning the area to pre-project ground surface contours. If native soil is not available from the project site for restoration, suitable clean soil of the same textural class may be used. The permittee must revegetate disturbed areas with native plant species sufficient in number, spacing, and diversity to restore affected functions. Revegetation must begin as soon as site conditions allow within the same growing season as the disturbance. Temporary erosion and sediment control measures must be removed as soon as the area has established vegetation sufficient to control erosion and sediment.

NWP 27 (Aquatic Habitat Restoration, Enhancement, and Establishment Activities) Conditions

- Only native plant species should be planted at the site.

NWP 33 (Temporary Construction, Access, and Dewatering) Conditions

- Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding.
- Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows.

- The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse environmental effects. Following completion of construction, temporary fill must be entirely removed to an area that has no waters of the United States, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate.

A.2.2 Ecology Section 401 Water Quality Certification

General Conditions

- Stormwater pollution prevention: All projects that involve land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoid discharge of pollutants in stormwater runoff to waters of the State.
 - For land disturbances during construction, the applicant must obtain and implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.
 - Following construction, prevention, or treatment of on-going stormwater runoff from impervious surfaces shall be provided.

A.3 Potential Contractor Plan Submittals

The list of plans that would need to be prepared before Project construction could begin may include but are not limited to the following:

- Cofferdam Construction Plan
- Cofferdam Monitoring Plan
- Concrete Removal and Disposal Plan
- Demolition Plan
- Fire Prevention Plan
- Fire Protection Plan
- Inadvertent Discovery Plan
- Land Use and Landscape Rehabilitation Plan
- Noise Reduction Plan
- Occupational Health Plan
- Personal Protective Equipment Plan
- Pumping Plan
- Seeding Plan
- Spill Prevention, Control, and Countermeasure Plan
- Stormwater Pollution Prevention Plan
- Temporary Erosion and Sediment Control Plan
- Traffic Control Plan
- Tree and Plant Protection Plan
- Waste Handling and Disposal Plan
- Waste Production and Disposal Plan
- Water Control Plan
- Work Area Isolation Plan

A.4 USFWS Biological Opinion

Reasonable and Prudent Measures

The conservation measures negotiated in cooperation with the USFWS and included as part of the proposed action constitute all the reasonable and prudent measures (RPMs) necessary to minimize the impacts of incidental take. On that basis, no RPMs except for monitoring and reporting requirements are included in the Incidental Take Statement (USFWS 2021).

RPM 1: Monitor implementation of the proposed action and report the results of that monitoring to ensure that the level of take exemption provided under this Incidental Take Statement is not exceeded.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the ESA, Reclamation must comply with the following terms and conditions, which implement the RPM and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

To implement RPM 1:

Term and Condition 1. The USBR⁴⁷ shall prepare a report describing the progress of the proposed Project, including implementation of the associated terms and condition, and impacts to the bull trout (50 CFR § 402.14(i)(1)(iv) and 402.14(i)(3)). The report, which shall be submitted to the Central Washington Field Office on or before April 1 of the year following monitoring, shall list and describe:

1. Results of fish capture and handling for all fish removal events at the intake construction area, and for bull trout entrained in the temporary water supply and captured in the sand settling basin. Include number and life stages of affected individuals detected, condition, and release locations.
2. Observations of bull trout impinged on the cofferdam walls. Include number and life stages of affected individuals detected, condition, and release locations. Note, all adult migratory bull trout will be released upstream of block nets and the construction area at River Mile 4.5.
3. Any observations of injured and/or dead bull trout in the action area, beyond the situations described above. Include the number, location, and life stages of affected individuals.
4. Results of turbidity monitoring during cofferdam construction and removal.
5. Implementation of any conservation recommendations.
6. Submit reports to USFWS' Central Washington Field Office at the address below:

U.S. Fish and Wildlife Service

⁴⁷ Prior to construction, Reclamation will coordinate monitoring activities with USFWS LFC staff tasked with implementing fish exclusion, capture, handling, and electroshocking protocols and standards (USFWS 2021).

Central Washington Field Office
Attn: SWISP (01EWF00-2021-F-0063)
215 Melody Lane, Suite 103
Wenatchee, WA 98801

The USFWS has determined that no more than 106 bull trout and 730 feet of Icicle Creek foraging, migratory, and overwintering habitat will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The federal agency must immediately provide an explanation of the causes of the taking and review with the USFWS need for possible modification of the reasonable and prudent measures.

The USFWS is to be notified within three working days upon locating a dead, injured, or sick endangered or threatened species specimen. Initial notification must be made to the nearest U.S. Fish and Wildlife Service Law Enforcement Office. Notification must include the date, time, precise location of the injured animal or carcass, and any other pertinent information. Care should be taken in handling sick or injured specimens to preserve biological materials in the best possible state for later analysis of cause of death, if that occurs. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed. Contact the U.S. Fish and Wildlife Service Law Enforcement Office at (425) 883-8122, or the USFWS' Central Washington Fish and Wildlife Office at (509) 665-3508.

A.5 References

- Anglin, D. R., J. J. Skalicky, D. Hines, and N. Jones. 2013. Icicle Creek Fish Passage Evaluation for The Leavenworth National Fish Hatchery. U.S. Fish and Wildlife Service, Columbia River Fisheries Program Office, Vancouver, Washington.
- NMFS (National Marine Fisheries Service). 2015. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH) Consultation; Leavenworth National Fish Hatchery spring Chinook Salmon Program. National Marine Fisheries Service, West Coast Region, Portland, Oregon.
- _____. 2017a. Programmatic Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Seattle District Corps of Engineers Permitting of Fish Passage and Restoration Action in Washington State (FPRP III). West Coast Region, Portland, Oregon.
- _____. 2017b. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH) Consultation, Leavenworth National Fish Hatchery Spring Chinook Salmon Program (Reinitiation 2016). National Marine Fisheries Service, West Coast Region, Portland, Oregon.
- NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 2008. Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington State Fish Passage and Habitat Enhancement Restoration Programmatic. NMFS Tracking No. 2008/03598, USFWS No. 13410-2008-FWS#F-0209. Lacey, Washington.
- Reclamation (U.S. Bureau of Reclamation). 2010. Technical Memorandum No. 86-68220-07-05: Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species, 2010 Edition. Denver, Colorado.
- USFWS (U.S. Fish and Wildlife Service). 2011. Biological Opinion for the operations and maintenance (O&M) of the LNFH and effects on the threatened bull trout (*Salvelinus confluentus*) and its designated critical habitat. USFWS Reference No. 13260-2011-F-0048 and 13260-2011-P-0002. Wenatchee, Washington.
- _____. 2012. Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols and Standards. Lacey, Washington.
- _____. 2021. Endangered Species Act Section 7 Biological Opinion for the Leavenworth National Fish Hatchery Surface Water Intake Fish Screens and Fish Passage (SWISP) Project in Chelan County, Washington. USFWS Reference No. 01EWW00-2021-F-0063. Washington Fish and Wildlife Office, Wenatchee, Washington.

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